ENGINEERING NEWS-RECORD

Monster jumbo sets dowels for canal face p. 39

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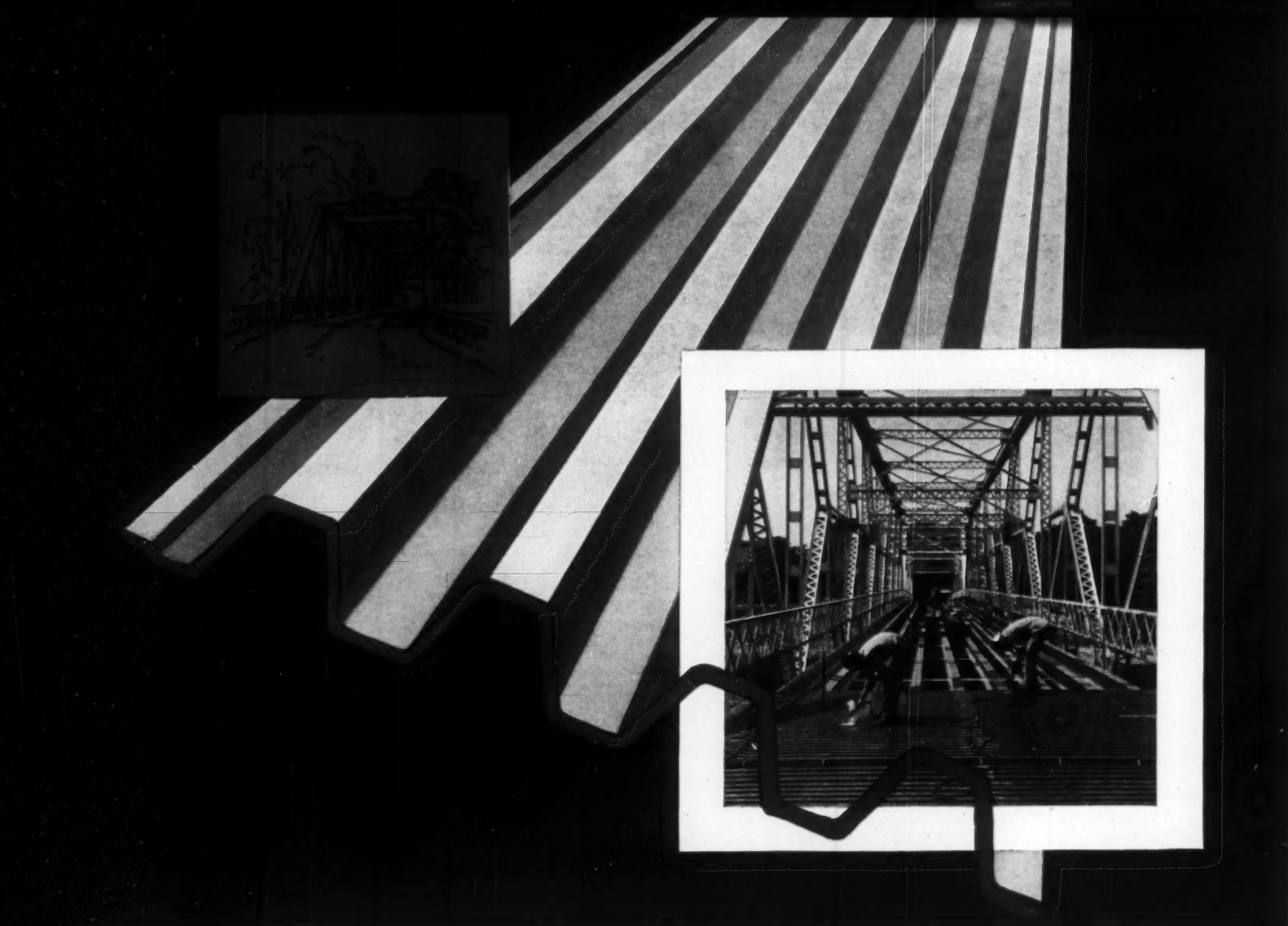

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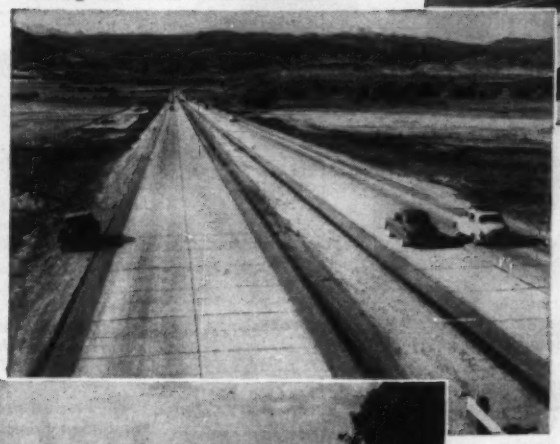
Colorado's Denver-Boulder Turnpike looking northwest toward Boulder



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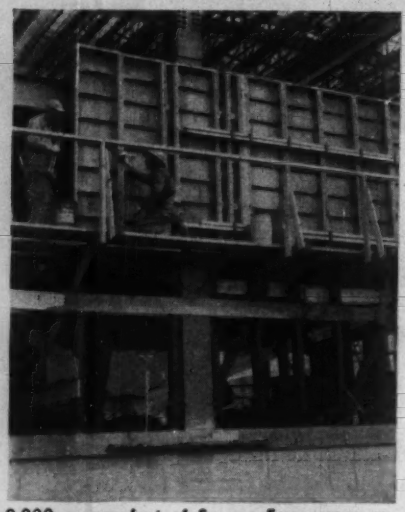

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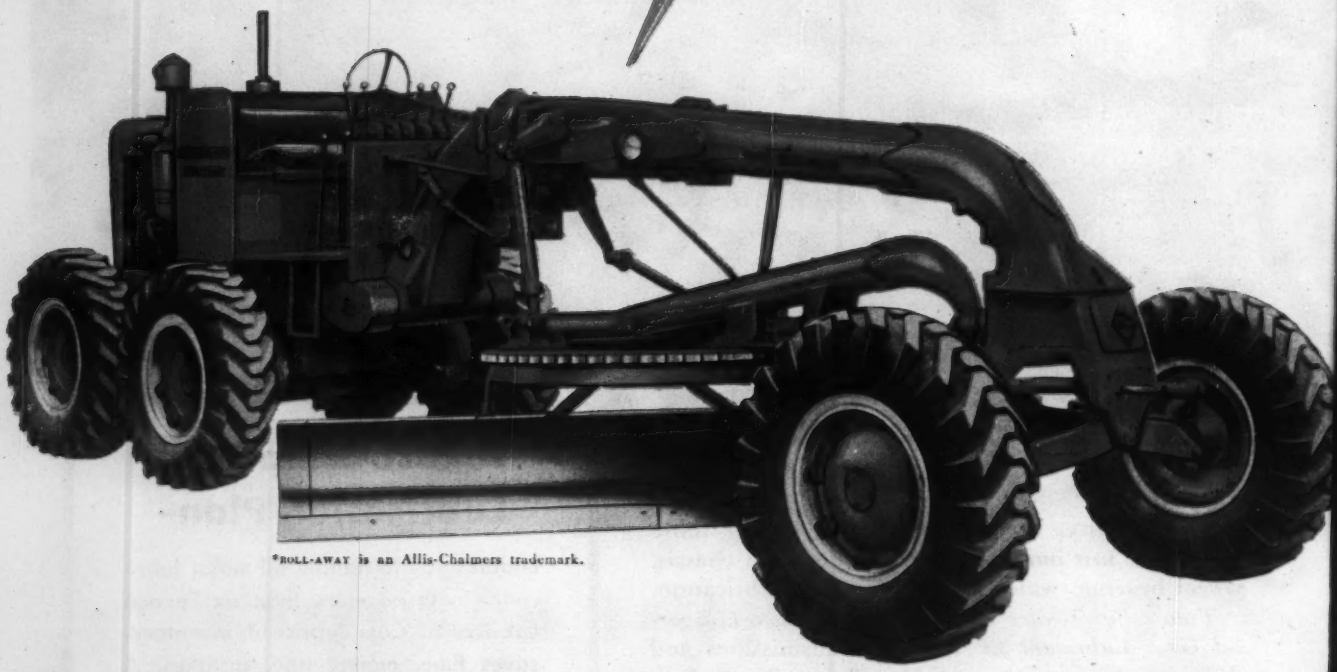

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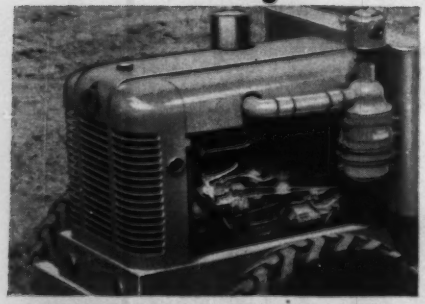

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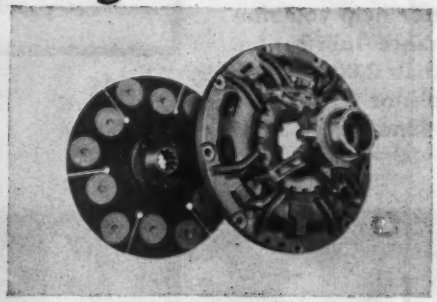

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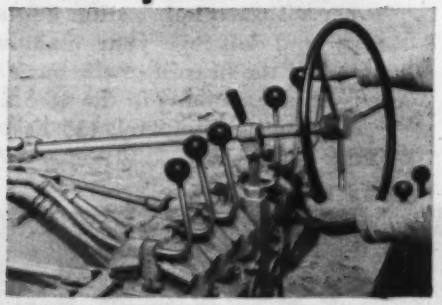

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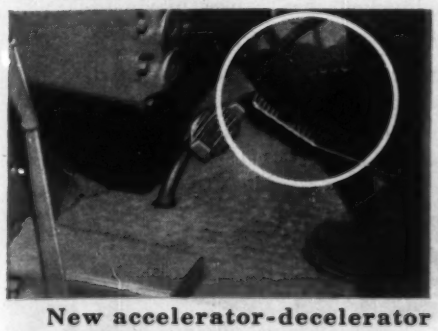

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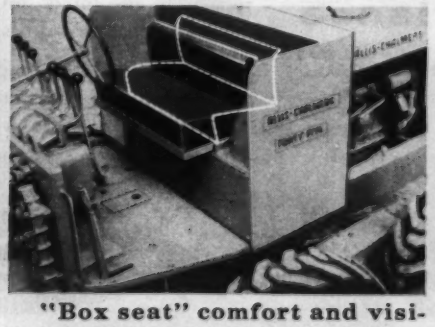

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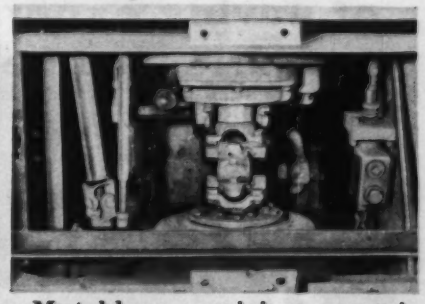

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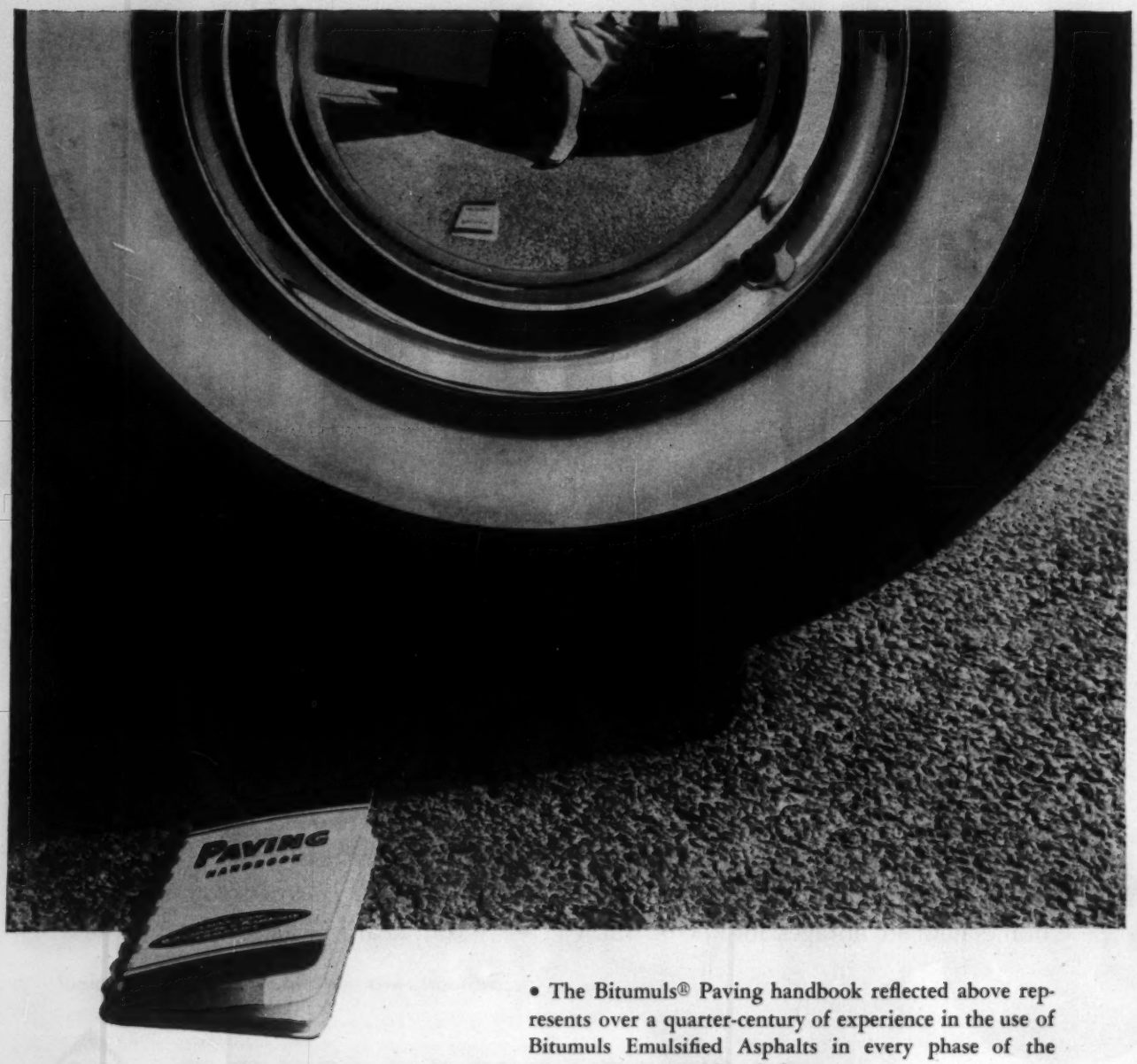

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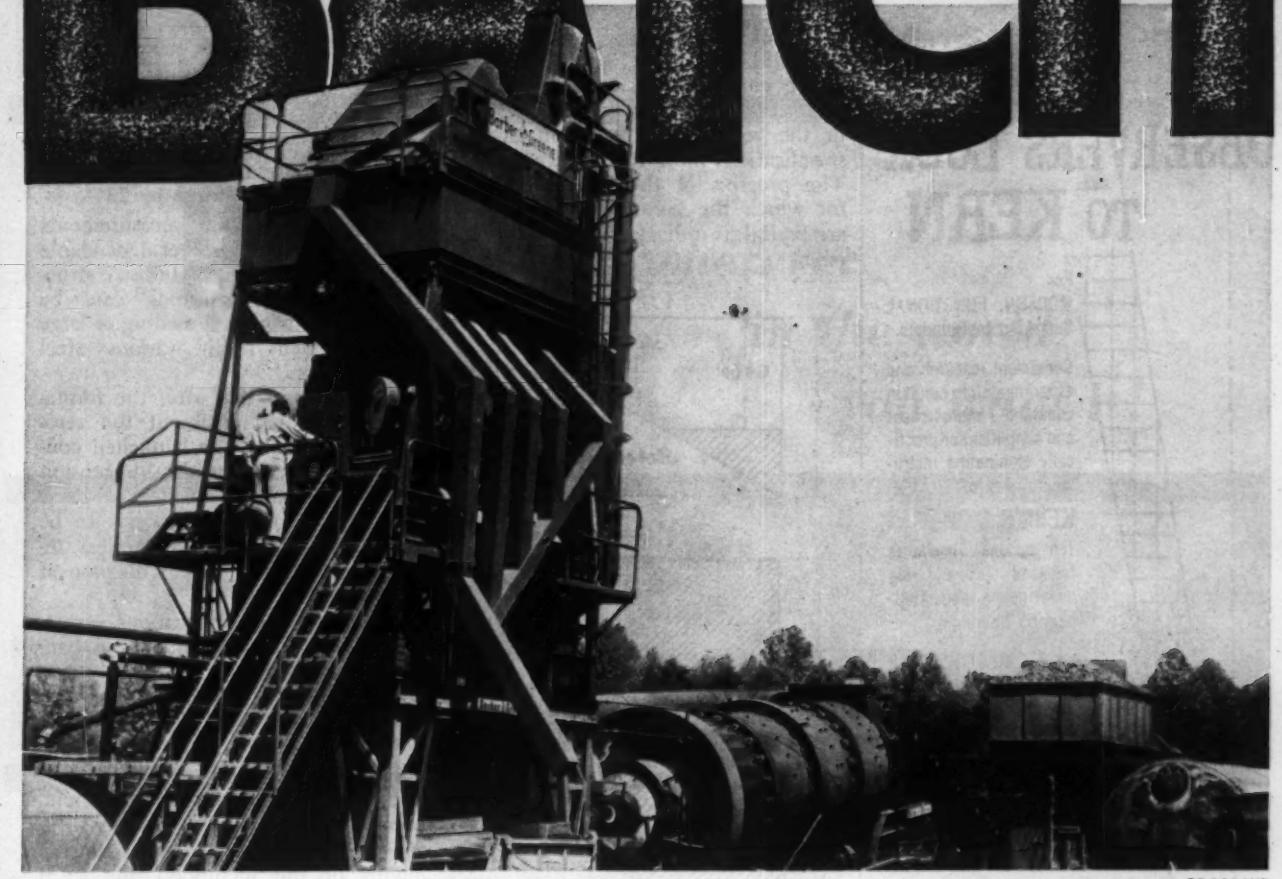

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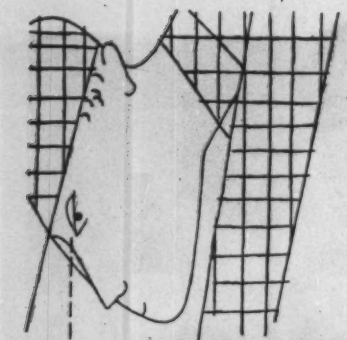

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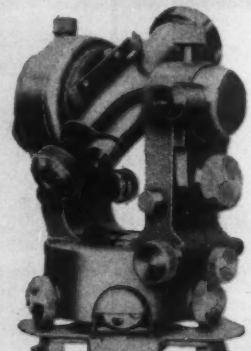

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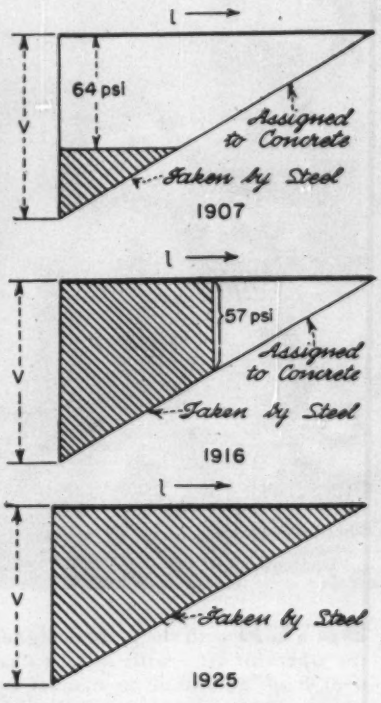
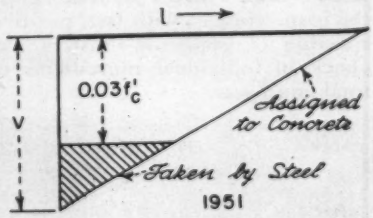
Reader Comment

Frame Failures

SIR—Your report on the Air Force warehouse frame failures (ENR Nov. 10, p. 21) states that lack of data prevented the covering of the conditions of the design of these frames in the 1951 ACI code. The question under consideration was extensively discussed during the 1920's, resulting in the revision of European design specifications more than 30 years ago. The progress of these specifications, for which the German specifications are typical, is indicated diagramatically below:



For comparison the diagram of the 1951 specifications of the ACI is shown below:



The requirement indicated by the diagram of the 1925 German specifications is still in force in Europe. These specifications were extensively motivated, especially in the design of continuous girders and frames. They were adopted because of the following considerations:

1. The theory of the homogeneous elastic frame for the effects of the loads applies only if reinforcement is provided for the moments and corresponding shears.

2. Tests showed that continuous haunched beams fail in the vicinity of the zero-moment points if full shear reinforcement is not provided in that region. Assigning 66-psi shearing stress to f'_c = 4,011-psi concrete, in that region only, reduced the carrying capacity of the test beam by 23%.

3. Web-steel strain measurements on small specimens are not dependable guides for the design of full-size structures. Valid conclusions can be reached only from test loading of large test specimens with various steel arrangements.

Tests showed that after the formation of diagonal cracks at the zero-moment points of the haunched continuous girder, a considerable tension developed in the main steel at these locations. The main steel has to be extended beyond the theoretical requirement of the moment diagram at these points.

The 1907 type specifications, assigning a part of the shear to the concrete, remained in use only in the United States. In contrast to the abandonment of the 1916 type for the 1925 type specifications in Europe (although in actual practice there was not much difference between them, because in addition to bent bars, stirrups were always provided for the full length of the members) the 1924 Joint Committee adopted the present ACI code of $v_c = 0.03f'_c$ and $v = 0.12f'_c$. With increasing f'_c and span length, it was certain that, sooner or later, structures would show that these specifications are inadequate.

The reported behavior of the warehouse roof frames is not surprising in view of the test results and the theoretical considerations that lead to the adoption of the 1925 type specifications. The cracking of frames with

(Continued on page 14)

Engineering News Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

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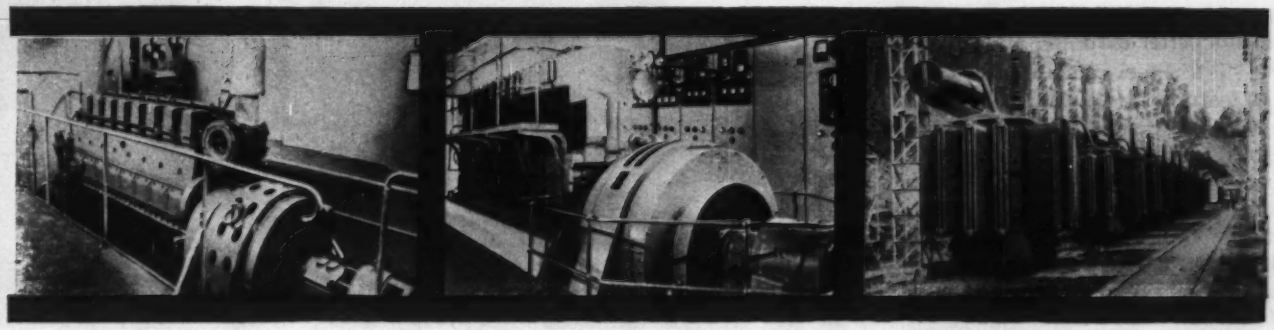

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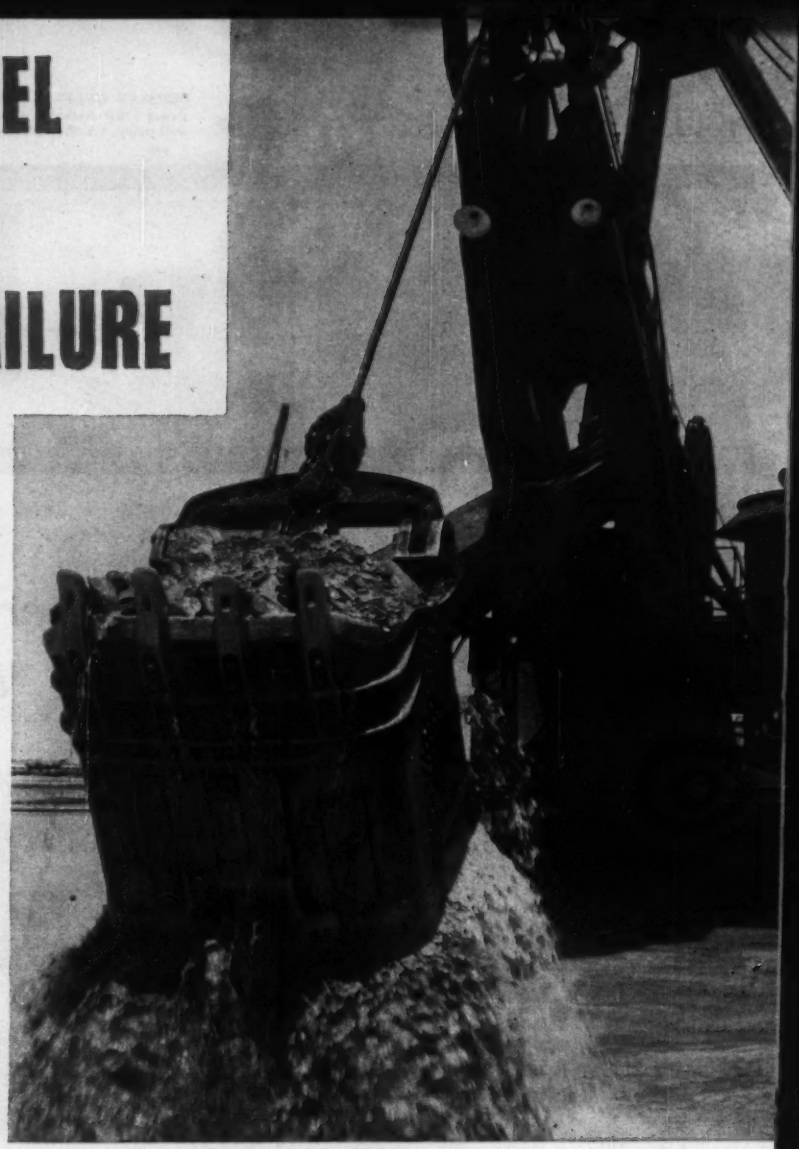
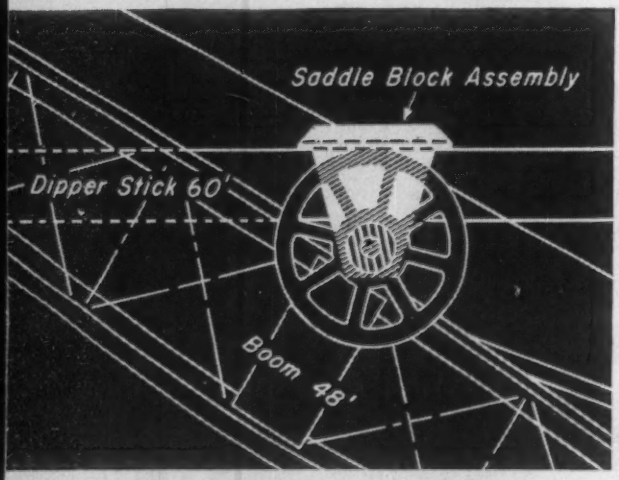
THE M. SULLIVAN is a dipper dredge on Lake Erie. It has a dipper stick and bucket that reach 42 ft. below water level, ripping loose 9 cubic yards of rock and hard pan at a swipe. The saddle block, located at the boom and dipper stick joint, provides the digging effort or "crowd" to the dipper stick and bucket. This saddle block is subjected to tremendous stress. In the past, saddle block failure was a common cause of lost time.

In fabricating a new saddle block, a steel was needed that had higher strength without increased bulk, plus resistance to sharp impact at low atmospheric temperatures. That's why tough USS "T-1" Steel was chosen. Strong, tough, weldable, USS "T-1" . . . "met these requirements better than any other material."

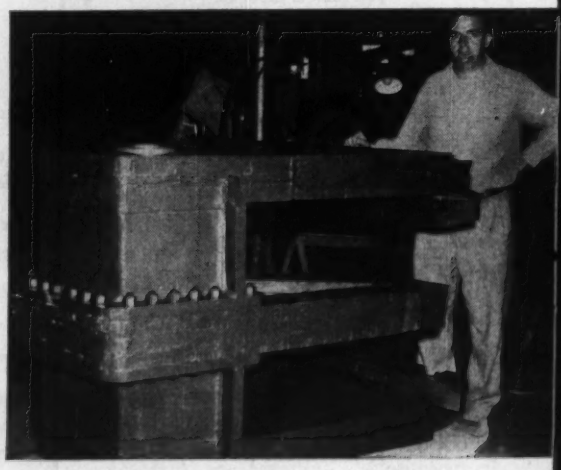
USS "T-1" Steel combines low cost with all of these features: *High strength* without weight increase; *impact resistance* at low temperatures; and *excellent weldability* without pre- or post-heating. "T-1" is ideal for use in bridges, mill equipment, rotating machinery, mining or construction equipment and any other equipment which must operate outdoors in extreme weather. The versatility of "T-1" is further proof that only steel can do so many jobs so well.



The dredge M. Sullivan, owned by Merritt-Chapman & Scott Corp., Cleveland, Ohio, scoops 9 cubic yards of rock from the floor of the Ashtabula, Ohio, harbor.



◀ Drawing indicates saddle block assembly's location on 48' boom. The saddle block provides the digging effort to the 60' dipper stick.



▶ Mr. Charles Lund of J. B. Lund's Sons Co., Cheboygan, Mich., stands by the saddle block fabricated by his firm. Plates of USS "T-1" Steel from ¾" to 2¾" were sandwiched and edge-welded 1¼" deep. Other operations on the block included straightening and machining.

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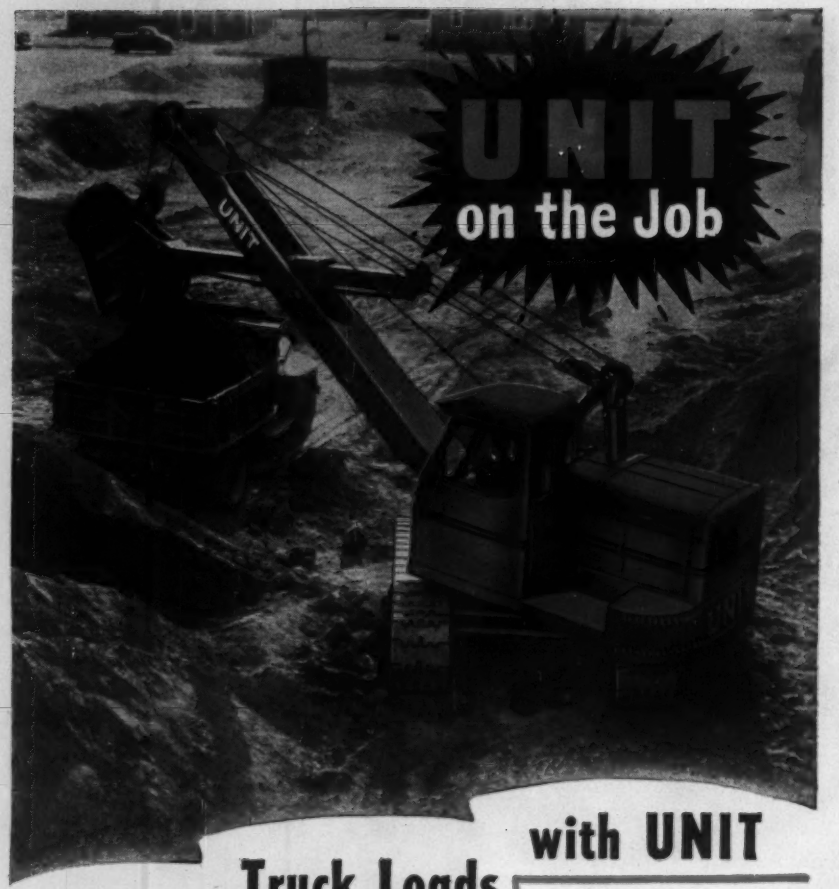

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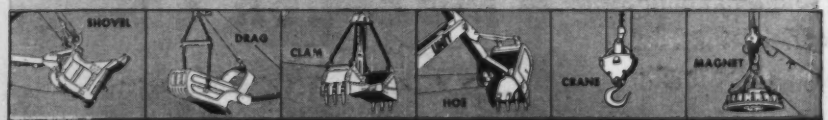

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. . . Reader Comment

67-ft spans of isolated rectangular section, relatively small design live load, only straight and somewhat short main steel, 90-psi shearing stress assigned to the concrete, would have been expected by those who carried on the arguments for the full shear-reinforcement requirement during the 1920s.

The writer discussed the questions touched upon in this comment in connection with his continuous rigid frame designs during the 1920's in Chicago.

LOUIS BALOG
Consulting Engineer
Binghamton, N. Y.

CALENDAR

American Association of State Highway Officials, annual meeting, Jung Hotel, New Orleans, La., Dec. 4-9.

Conference on Design for Environment, highlighting floor-ceilings and service systems in multi-story buildings, conducted by the Building Research Institute, National Academy of Sciences, Washington, D. C., Dec. 7-8.

Nuclear Engineering and Science Congress, sponsored by the Engineers Joint Council, Public Auditorium, Cleveland, O., Dec. 12-16.

American Road Builders' Association, annual convention, Miami Beach Auditorium, Miami Beach, Fla., Jan. 11-14.

Highway Research Board, annual meeting, Sheraton-Park Hotel, Washington, D. C., Jan. 17-20.

American Society of Heating and Air-Conditioning Engineers, annual meeting, Sheraton-Gibson Hotel, Cincinnati, O., Jan. 23-25.

National Association of Home Builders, annual convention-exposition, Conrad Hilton and Sherman Hotels, and the Coliseum, Chicago, Ill., Jan. 22-26.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan. 29-Feb. 2.

Society of American Military Engineers, annual technical meeting, Palmer House, Chicago, Ill., Feb. 9-10.

Association of Asphalt Paving Technologists, annual meeting, Hotel Cleveland, Cleveland, O., Feb. 13-15.

Associated General Contractors of America, national convention, Waldorf-Astoria Hotel, New York, N. Y., Feb. 13-16.

American Concrete Pipe Association, annual convention, Broadmoor Hotel, Colorado Springs, Colo., March 6-10.

American Congress on Surveying and Mapping, and American Society of Photogrammetry, convention, Shoreham Hotel, Washington, D. C., March 18-24.

Conference on Urban Design, Robinson Hall and Hunt Hall, Harvard University, Cambridge, Mass., April 9-10.

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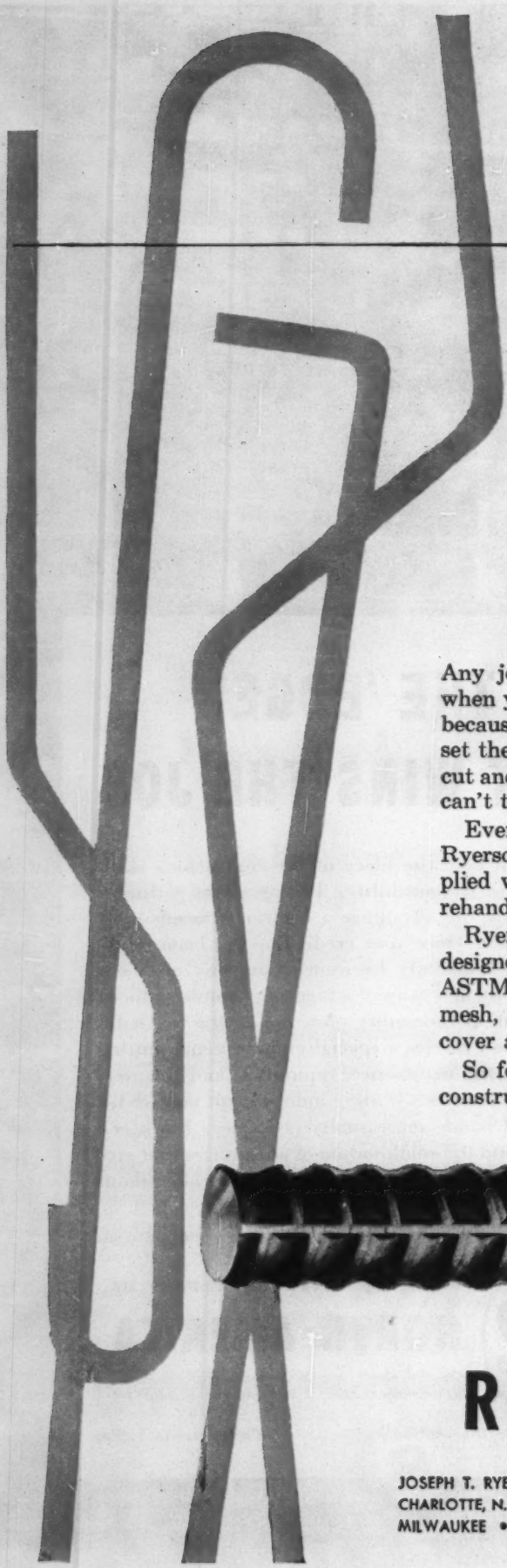

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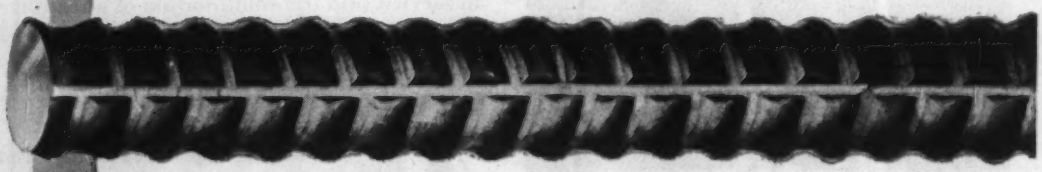
So for dependable service on re-bars and every type of construction steel, contact your nearby Ryerson plant.



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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

LABOR MILESTONE—The AFL and CIO were taking the final vows this week to restore a unified labor movement that was torn assunder in the mid-'30's by the bitter craft vs. industrial unionism issue (Page 21).

But, none were more acutely aware than officials of the building trades that the merger offers no panacea for dual unionism and other forms of jurisdictional friction. In the future as in the past, use of company employes—in industrial concerns as well as on the railroads—for construction work will remain a particularly bothersome issue.

Building trades officials could only hope that the merger would create more incentive and a stronger foundation for the still autonomous unions to negotiate their jurisdictional differences by voluntary means—an approach the AFL Building Trades Department itself adopted many years ago.

UNIQUE OFFER—The Somerset-Raritan Valley Sewerage Authority in New Jersey this week had under consideration an offer from American Cyanamid Co. to accept for secondary treatment all municipal and industrial wastes in the authority's county-wide area (Page 24). The company is ready to go ahead with construction of an industrial waste treatment plant to give its chemical wastes complete treatment.

REORGANIZATION IN MARYLAND—There was plenty of steam this week behind a study commission's proposal that the present three-man Maryland State Roads Commission be replaced by a department under a single director. It was noted that highway departments in all but 11 states now have a single executive (Page 25).

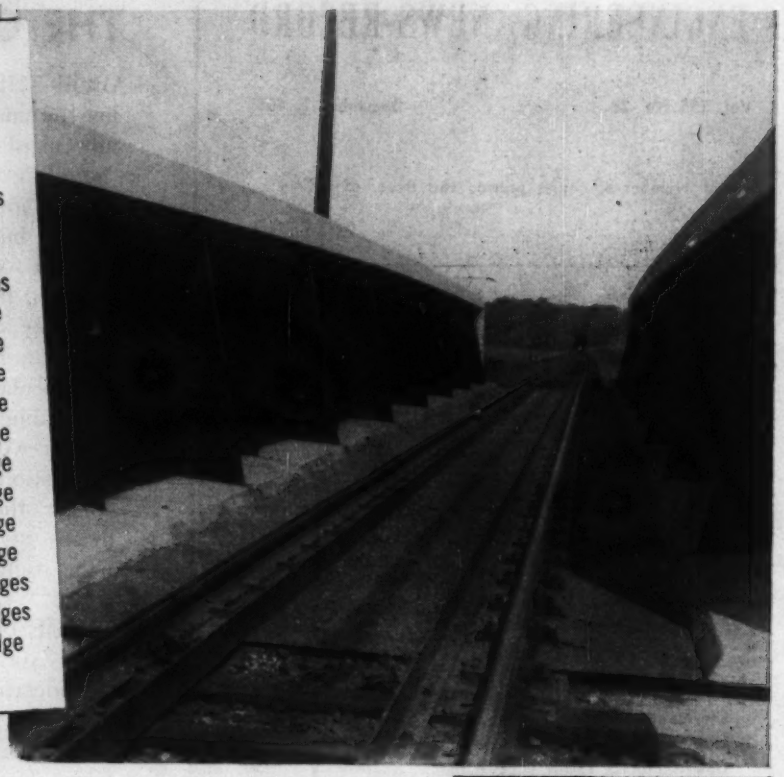
PIPELINE CONSTRUCTION CHALLENGE—What could be really big construction news occurred in Washington last week when a new company known as the Offshore Gathering Corp., Houston, Tex., filed an application with the Federal Power Commission for permission to build two submarine gas and oil pipelines in the Gulf of Mexico. Costing an estimated $150 million, they would be located 25 mi offshore between Port Arthur, Tex., and Biloxi, Miss.

There's a twofold significance for construction: (1) These would be the first "common carrier" pipelines to serve the rapidly increasing offshore wells, each of which now has its own small pipeline or barge fleet; (2) new and spectacular methods of underwater pipeline construction would have to be developed since wells are inevitably going farther offshore and in deeper water.

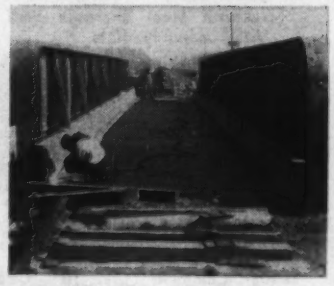
Financing of the initial project by the Wall Street firm of Salomon Bros. & Hutzler is indicated. Such expert pipeline builders as the Collins Construction Co., Port Lavaca, Tex., and Williams Brothers, Tulsa, Okla., have had a hand in the plans.

Pennsylvania Railroad Bridges Using Wrought Iron Deck Plates

Bladensburg Road, Washington, D. C.	2 Bridges
Arbutus, Maryland	1 Bridge
Sparrows Point Spur, Baltimore, Md.	3 Bridges
North Point Road, Baltimore, Md.	1 Bridge
Middle River, Md.	1 Bridge
Queen Anne, Md.	1 Bridge
Chester, Pa.	1 Bridge
Northampton, Pa.	1 Bridge
Linden, N. J.	1 Bridge
Mulberry St., Baltimore, Md.	1 Bridge
King of Prussia, Pa.	1 Bridge
Paoli, Pa.	3 Bridges
Jersey City, N. J.	2 Bridges
Exton, Pa.	1 Bridge
Wilmington, Del.	



WROUGHT IRON Deck Plates Increase the Life-Span of these Pennsylvania Railroad Bridges



The latest count shows that 21 Pennsylvania Railroad bridges in the Eastern Region are decked with wrought iron plates. A listing of these bridges, and four typical installations are shown here.

The selection of wrought iron plate for this service is sound engineering. Plates are subject to vibration and severe corrosive attack from coal and refrigerator car drippings and run-off water. The use of ballast makes it difficult for regular inspection and maintenance. It all adds up to the need for a material that can withstand corrosive forces and fatigue stresses. And wrought iron plate has a proved record of durability under these conditions. Too, it is easily fabricated . . . a plus value in deck plate installation. Riveted or welded, the plates form a long-lasting, water-tight coat over the entire bridge floor to protect structural members.

More information on this proved wrought iron plate application is in our bulletin, *Wrought Iron for Bridge Construction*. Write for your copy.

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WASHINGTON OBSERVER

Housing is suffering from shortages of materials and labor as well as from credit restraints.

Federal Reserve Board and Treasury Department officials told a Senate subcommittee this week that construction may be operating close to capacity; that the competition among industrial, commercial public works and housing industries for steel and cement is causing U. S. capacity to bump the ceiling.

Builders told the senators—It isn't so. William Levitt, the mass home builder, says he isn't paying a dime more for his materials. But Martin and Deputy Treasury Secretary Randolph E. Burgess stuck to their guns.

•

Creation of an Air Force Engineer Corps for wartime overseas work is now doubtful. The Army Engineers now assign Army troops to the Air Force. But the Air Force Secretary of Defense Wilson is expected to decide on an Army Engineer construction pool from which Air Force, and other Army commands could draw units as needed. The Air Force would get units for airbase maintenance.

•

The Rains housing subcommittee will go back on the road next year. It is the subgroup of the House Banking and Currency Committee which looked into housing financing, urban renewal and so on during the fall—in the New York area, Philadelphia, Chicago and Los Angeles. **Subcommittee chairman Albert Rains, D. Ala.,** says he will go into 15 more cities next year, starting in January and running through Easter. Starting with Toledo in January, the subcommittee will hold hearings in Milwaukee, Detroit, Louisville, New Orleans, Birmingham, and possibly some more cities on the West Coast, including San Francisco.

You can look for more emphasis on urban renewal in next year's hearings. The committee is concerned about the lag in getting renewal programs approved and construction under way.

•

Cities face "municipal bankruptcy" by 1965 unless urban blight is attacked vigorously—and now. That's the warning of Housing Administrator Albert Cole in this week's speech to the American Municipal Association at Miami. Cole figures that urban population will take a 25,000,000 to 28,000,000 jump in ten years.

A citywide renewal plan is the best way to do the job, Cole says. More than 70 cities now have programs going, and 90 other communities are in the planning stage.

•

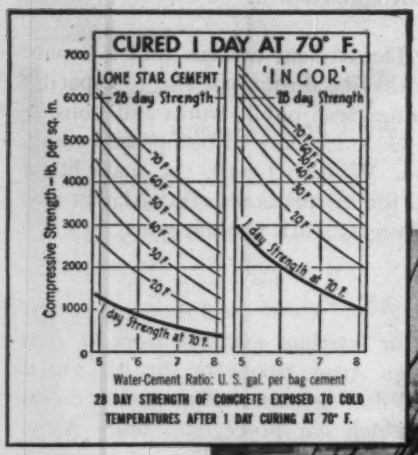
AFL building trades unions take a large look at workmen's compensation laws in their latest bulletin—and warn members that "the injury rate in construction remains high."

Statistics quoted are designed to jolt the union member: "The odds on you getting injured on the job this year are about 13 to one."

Union agents are told to be at hearings that decide compensation on an injury, to write into contracts clauses that take care of work done in other states than the contractor's home state, and to sharpen up their contests in compensation cases.

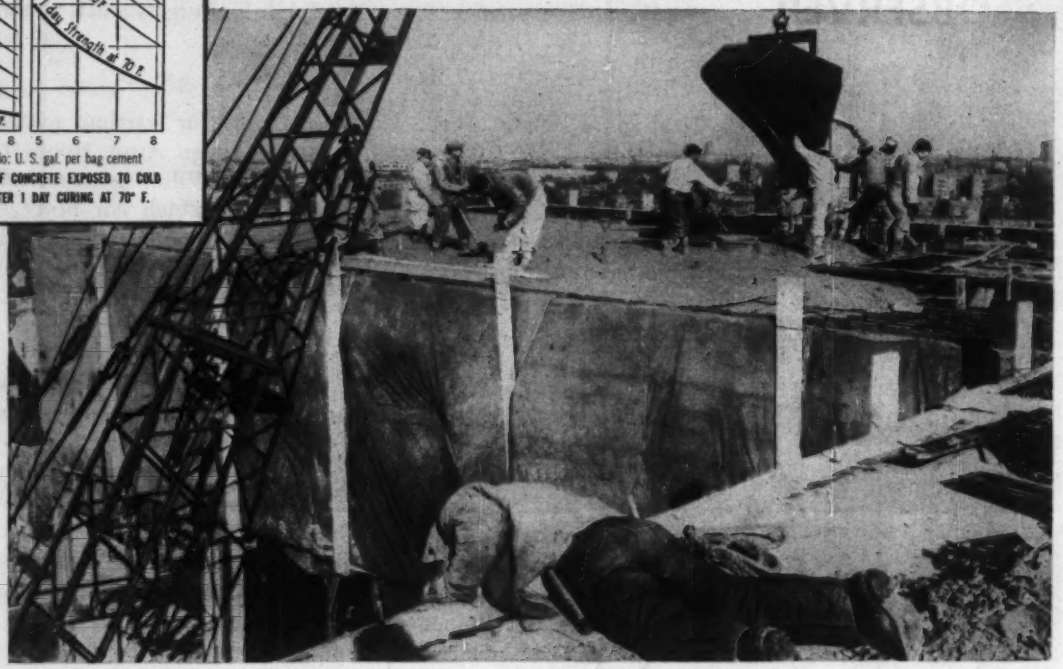
AFL wants to fix compensation for wage loss at two-thirds of full-time wage, guaranteed medical care with no cut-off prior to full recovery, and rehabilitation programs to restore a worker's full earning power if this is at all possible.

'INCOR' Changes Winter into Summer



28 DAY STRENGTH OF CONCRETE EXPOSED TO COLD TEMPERATURES AFTER 1 DAY CURING AT 70° F.

Strength-test results in Lone Star Cement Research Laboratories, confirmed by nearly thirty years' field experience, show why 'Incor' makes year-around concreting economically practicable.



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Architect: WILLIAM FRANCIS SCHORN, New York
Structural Engineers: SEVERUD, ELSTAD & KRUGER, New York
General Contractor: CAYE CONSTRUCTION CO., INC., Brooklyn, N. Y.
Ready-mix 'Incor' Concrete: METROPOLITAN SAND & GRAVEL CORP., New York

●Cold weather used to slow concreting down to a walk and hike costs way up. 'Incor' 24-Hour Cement changed all that. By providing dependable service strength, and resulting safety from freezing, in only 24 hours, 'Incor' makes it possible to maintain low-cost high-speed schedules, even in sub-freezing weather, changing Winter into Summer for the building industry.

Caye Construction Co., Inc. had to complete erection of the reinforced concrete frame of Salvation Army's Booth Memorial Hospital, Flushing, N. Y. last Winter. On November 1, based on long and successful experience, they switched to 'Incor' 24-Hour Cement to concrete the six upper stories.

With 'Incor' and only one-day heat protection, forms were stripped in 24-48 hours, even at lowest outside temperatures. Each pour was protected by canvas, and heaters using propane gas provided steady, clean, uniform heat, with minimum labor costs. The Contractor says—Closing out the job with 'Incor' saved 4 weeks' time (with correspondingly reduced job overhead), and cut heating costs by two-thirds, saving $1.05 per cu. yd. of concrete.

Any time is 'Incor'* time...and that goes double in cold weather!

*Reg. U. S. Pat. Off.

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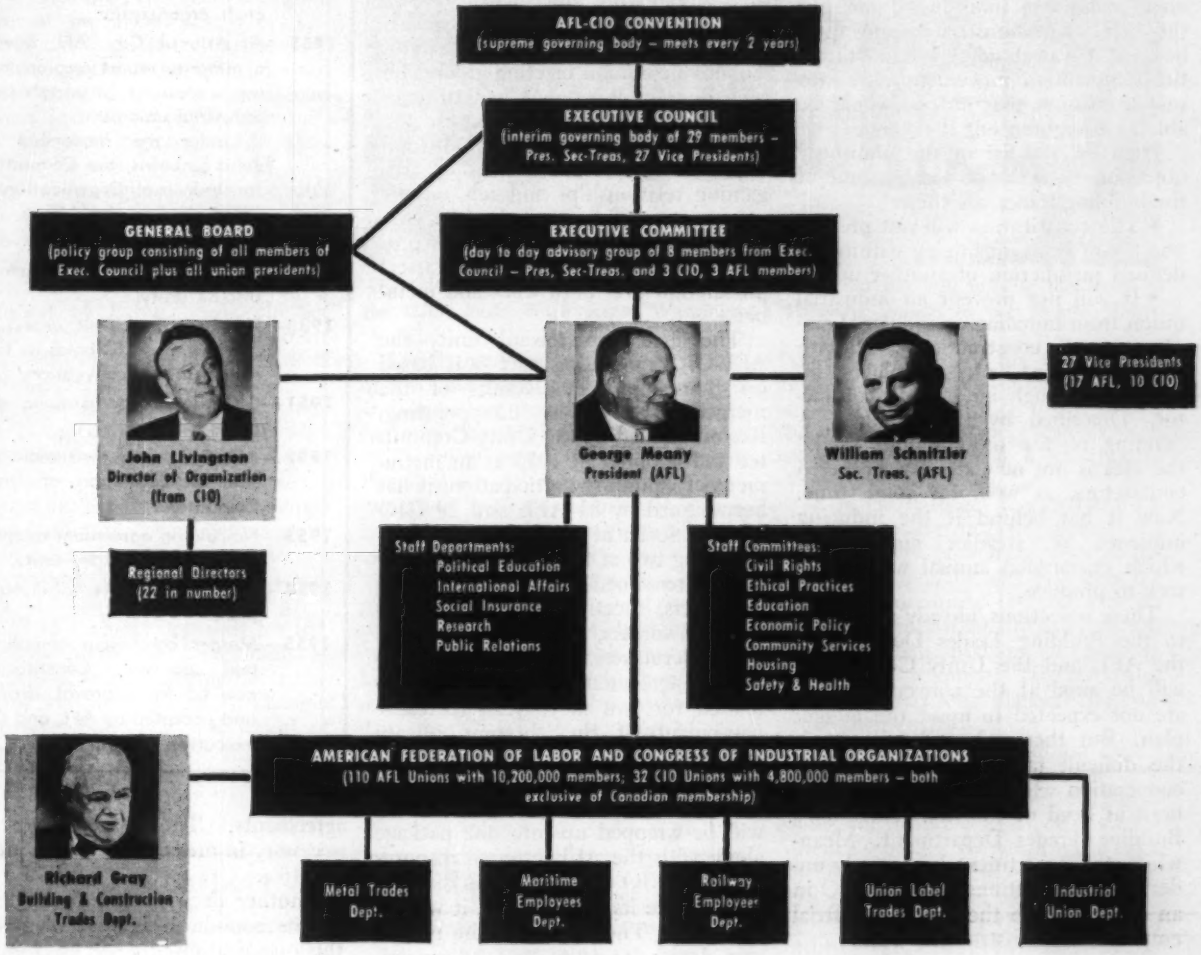
The AFL-CIO Merger Takes Shape



New Day Dawns for Labor Unions

Charles J. Harding
Associate Editor

Merger of the AFL and CIO scheduled to take place in New York City this week will form the most powerful labor alliance in history. But, it is readily apparent that reunion of the two organizations provides no guarantee that jurisdictional squabbles within the construction industry and within the ranks of labor itself will be solved more easily.

The real task of making the new federation an effective instrument to realize the hopes and aspirations of organized labor lies ahead. Inherited in the process of merger is the deep division between craft and industrial unions that caused the spin-off of the CIO in 1936. Into the lap of the new organization are dumped still unsolved the conflicting interests and ambitions of many unions. Some labor groups, favoring unity in principle, seriously question whether the merger as now conceived can ever achieve its goals. Among them are several unions in the building trades.

In the meantime, the Unity Committee's philosophy—first things first—will prevail. Today and tomorrow, the AFL and CIO will meet in what labor leaders hope will be their last separate conventions. Both are fully expected to approve the merger plan and to pave the way for the historic first convention of the American Federation of Labor and Congress of Industrial Organizations to convene next Monday.

• **Big issue**—The big issue before the separate conventions is the proposed constitution for the new federation. Although endorsed by the AFL and CIO executive and Unity Committees, it has, like any compromise, failed to win the approval of all to whom it applies. A substantial amount of dissatisfaction is found in the building trades.

The plumbers union, for example, claims that the constitution will promote dual unionism and perhaps de-

. . . AFL-CIO merger

stroy the principle of exclusive trade or craft jurisdiction upon which so many of the AFL unions are based. It's the same argument that was used in 1935 when the AFL closed its eyes to the new techniques demanded by mass production in industry and put the brakes on industrial organization because it was afraid it would "throw the trade union movement . . . into such confusion that no one would be able to straighten out the tangle."

High on the list of the plumbers' objections, now supported by some of the building trades, are these:

• The constitution will not prevent one union from organizing within the defined jurisdiction of another union.

• It will not prevent an industrial union from inducing an industrial employer to do construction work with its own maintenance employes instead of through an outside contractor. Described by the plumbers as "raiding of the most serious kind," the idea is not new and has bothered contractors, as well, for some time. Now it has behind it the inducing influence of steadier employment which guaranteed annual wage plans seek to produce.

These objections, already submitted to the Building Trades Department, the AFL and the Unity Committee, will be aired at the conventions but are not expected to upset the merger plan. But they're bound to increase the difficult task of adjustment and cooperation which Dick Gray will inherit as head of the new federation's Building Trades Department. Meanwhile, the department has already undertaken negotiations with the CIO in an effort to curb the use of industrial employes for construction work.

• **The plan**—Dual unionism and conflicting jurisdictional interests are neither created nor increased by the merger—they've always existed. They plagued the Knights of Labor, gave the craft-minded AFL its start in 1886, split the federation apart, and spawned the CIO. All the merger professes to do is to provide a common goal, a meeting ground and the machinery for a united labor movement.

In its search for unity, the weakness of the constitution lies in its strength. To find a common meeting ground for such diverse affiliates, it had to guarantee union autonomy, recognize the validity of both craft and industrial organization, protect established bargaining relationships and rely on use of voluntary efforts to solve the conflicts necessarily existing where two or more unions in the same field assert jurisdiction over both work and members.

The first step toward unity—the AFL-CIO no-raiding pact—was based on that approach. Results of the merger may be as disappointing. Recommended by the Unity Committee and adopted in 1953 as an instrument of voluntary participation, it has been signed by 81 AFL and 29 CIO unions. Seven of the building trades—including two of the nation's "big six"—have remained outside: teamsters, carpenters, sheetmetal workers, laborers, ironworkers, operating engineers, and boilermakers.

The agreement will now be extended for two more years. Present participants—if they become uneasy enough about the merger—can pull out from under it but still remain in the AFL-CIO. Eventually the instrument will be wrapped up into one package along with the AFL internal disputes and the CIO organizational disputes plans. Like its predecessors, it will be voluntary. The success of the merger as a device for unity—and its real impact—will depend on how much enthusiasm can be whipped up for voluntarily giving in for the good of all.

• **Organization**—As a result, organization of the unorganized—one of the merger's major goals—will get off to a poor start. George Meany, who takes over as head of the AFL-CIO on Monday, and who is a member of the plumbers union, has already said that no efforts will be made to organize workers in fields of conflicting jurisdiction until agreement has been reached in advance on affiliation for new members. Meanwhile, individual unions have stepped up their membership drives to get what they can before the merger gives its protection to existing bargaining relationships. Deeply aware of the problem, CIO's Walter Reuther expects the dynamic forces of the merger to speed up the use of voluntary agreements. These agreements are necessary in order to make the merger effective.

Another decision still to be tested for its soundness is that of putting the organization-minded CIO in the driver's seat for organization.

Not only will John Livingston, UAW-CIO vice president in charge of the General Motors Department, take over as the new director of organization, but he will also sit at the summit of the new 22 AFL-CIO regional directors (See page 21). It is through him that the tremendous merger enthusiasm of Walter Reuther, UAW president and probable head of the new Industrial Union Department will have to be largely funneled.

• **A big job done**—Despite the criticism which the merger inspires, the Unity Committee has done a tremendous job in bringing labor to the fact of merger. On the theory that it's easier to settle disputes within a family than outside a family, it has produced a reasonably acceptable compromise and sold it to most of the 142 loose, private and personal AFL and CIO

Merger Is a Big Deal

Total U. S. labor force		**70,000,000**
Union members		**17,000,000**
Within the merger:		
AFL	10,200,000	
CIO	4,800,000	15,000,000
Independent unions		**2,000,000**
Big six:		
Auto Workers (CIO)	1,239,000	
Teamsters (AFL)	1,231,000	
Steelworkers (CIO)	864,000	
Carpenters (AFL)	804,000	
Electrical Workers (AFL)	630,000	4,768,000

Behind the Merger:

1886—AFL, based on the principle of exclusive trade jurisdiction, forms under the leadership of Samuel Gompers.

1934—In its San Francisco declaration, AFL reaffirms merit of craft organization.

1935—At Atlantic City, AFL rejects a minority report recommending acceptance of unrestricted industrial unionism.

Under the leadership of John L. Lewis, the Committee for Industrial Organization is established in the AFL.

1936—CIO suspended by AFL.

1937—CIO and AFL unsuccessfully discuss unity.

1938—President Roosevelt urges labor to unite. CIO holds its first constitutional convention.

1951—CIO adopts organizational disputes plan.

1952—AFL-CIO unit discussion results in formation of Unity Committee.

1953—No-raiding agreement adopted as first step toward unity.

1954—AFL approves internal disputes plan.

1955—Merger agreement completed and approved. Constitution, now up for approval, drafted and accepted by AFL and CIO executive committees.

empires that represent about 82% of the nation's organized labor.

It has sparked the amalgamation of state AFL and CIO federations now in the process of merger across the country.

It has meshed the AFL and the CIO into a single administrative group and has filled the posts created to guide the new organization.

It has agreed on a location for AFL-CIO headquarters—the new $3.5-million AFL building now under construction just north of Washington's plush Lafayette Square, a few steps from the White House. And here, critics of the merger jestingly see some ominous symbols—the building will not be completed in time for the merger, it has proven too small for its purpose, and the words "American Federation of Labor" now chiseled into the stone facade leave no room for the addition of "and Congress of Industrial Organizations."

But most of all, the Unity Committee has given organized labor what Walter Reuther describes as "a great opportunity and a glorious challenge."

Politically, the effects of the merger can be profound, even before unity itself is achieved. During next week's joint convention, the AFL-CIO will unfold its legislative program which is expected to include: demands for federal aid to push school and highway construction, federal income tax reductions for low-income earners, changes in the wage-hour law and repeal of right-to-work laws and Section 14(b) of the Taft-Hartley Act that supports them.

AFL-CIO HEADQUARTERS, now nearly completed but still missing the name of the CIO, looks down across Washington's Lafayette Square to the White House.

Legislative changes relating to secondary boycotts, pre-hiring contracts and prevailing wages will continue to be sought by the building trades.

The new federation will plug for liberalization of unemployment compensation and workmen's compensation benefits and will seek an increase in social security benefits.

At the forthcoming conventions and in the days ahead, emphasis will be placed on methods of bringing unorganized labor into the union fold. Unionization has barely kept pace with the growth in population. Today, only one out of four of the 70,000,000 people in the nation's labor force is a union member. The merger was conceived in part, as a "shot in the arm" for the forward advance of the trade union movement and as the vehicle which might inspire the crusading spirit necessary to overcome the obstacles now existing to effective organization.

In an effort to get the rank-and-file behind a massive push to organize, the AFL-CIO will launch an educational program to explain and proclaim the merits of unionism. It will pay increasing attention to the use and role of union labels, perhaps adversely affecting the secondary boycott situation which has long plagued the construction industry.

At the collective bargaining tables, the merger is expected to have little effect at the present time. Although giving the workers a larger share of America's productive wealth has been officially proclaimed as one of the merger's goals, members of industry and labor alike point out that unions will continue to bargain as autonomous units. Demands for higher wages and better working conditions will be made—but as in the past it will be each union for itself.

The building industry's National Joint Board for the Settlement of Jurisdictional Disputes, now in its eighth year, will continue as before, but with greater emphasis on unanimous participation by members of the Building Trades Department. Although it admits that it's "no doubt impossible to eliminate jurisdictional disputes in this industry," it is itself a force that may contribute to the merger's effectiveness in achieving labor unity. By encouraging the use of voluntary national agreements, and through its numerous decisions of record, it is slowly eliminating some of the strife within the building trades by defining the jurisdictional claims which each of the crafts can assert over various forms of work.

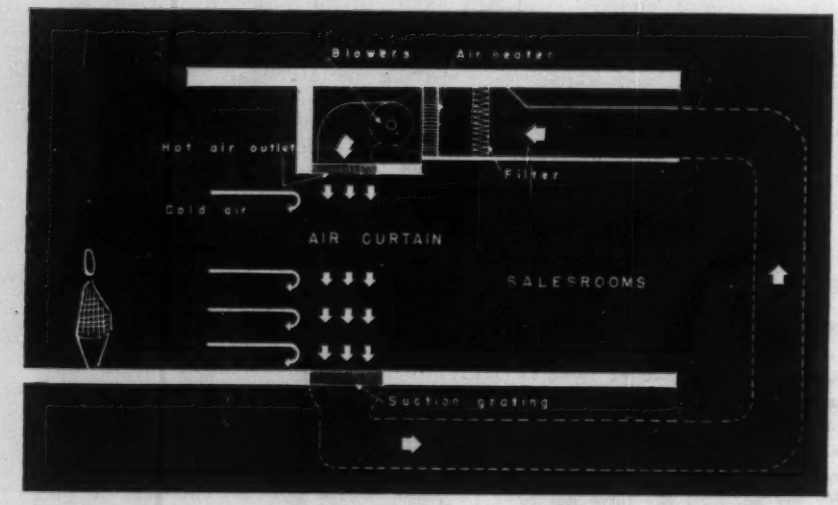
Conflicts Are Deep-Rooted

". . . There is no unity in the American Federation of Labor. It is disunity, 110 different craft unions at each other's throats fighting for membership, holding up the building program of the United States Government for months and months, fighting about who shall hang a door or lay a floor. . . . That is not the kind of unity we want. . . . (We) do not want to be divided and scattered all over the jurisdiction of the American Federation of Labor. . . . We want a unified labor . . . without destroying a single labor union."—(CIO Convention, 1938)

". . . A CIO union that has a charter with a certain jurisdiction takes that jurisdiction into the new organization. That obviously will create some problems. . . . If two unions in the same area of jurisdiction can . . . get together and merge . . . that is desirable. . . . This is something you have to work out. . . . Are we going to have an organizational drive with 36 craft unions passing out leaflets and an industrial union passing out leaflets at the plant gate? We say no, . . . you have got to have a unified approach. . . ." (Walter Reuther, 1955)

". . . The proposed constitution frankly recognizes that dual unionism and conflicting, overlapping and duplicating jurisdictions, are inherent and permitted after merger. . . . (This) principle is abhorrent to the American Federation of Labor. The practice of organizing workers into a union without regard to whether or not they properly belong to that union has generally been condemned. . . ."—(President of AFL plumbers union, 1955)

THERE'S NO DOOR to bother this shopper as she leaves an Ohio supermarket—only a curtain wall of air. Circulation diagram below shows how the system works.



Curtain of Air Replaces Door

Shoppers walk through a curtain wall of air—instead of a door—at a Kroger Co. supermarket in Deer Park, Ohio. Fabricated by the American Air-Curtain Corp., of St. Louis, which holds the U. S. franchise, this is believed to be the first installation of its kind in the United States.

The opening is 11 ft 6 in. wide, 4 ft deep, and 8 ft high. However, the air actually moves through a path only 30 in. wide. The air is circulated through the passage by 10 louvers that are built in the ceiling. These louvers are powered by a ¼-hp motor and can be tilted to any desired angle.

The blower is operated by a 5 hp motor and has three fans. Air movement is about 12,000 cfm.

A pit under the suction grating is 3 ft deep and is equipped with a floor drain. It also has water line sprays which operate one minute out of every ten. There are expanded metal screens at the end of the pit and there is a washable air filter at the entrance of the blower unit. Air can be either heated or cooled. Ducts in the sidewall are 12 by 60 in., faced with a decorative aluminum.

Sewage Treatment

Private company offers to handle county wastes

The Somerset-Raritan Valley Sewerage Authority on the upper Raritan River in New Jersey, has received an unusual offer by American Cyanamid Co., its outstanding industry.

The firm has announced its intention to go ahead promptly with design and construction of an industrial waste treatment plant, and it has offered to accept for secondary treatment all domestic and industrial wastes of the area to be served by the authority.

This means in effect that if the authority accepts the offer it will need to build only a primary treatment plant for its three boroughs, one township and one other large industry.

Primary effluent from this plant would go to American Cyanamid for secondary treatment on trickling filters.

Early studies by Sheppard T. Powell and Whitman, Requardt & Associates —both Baltimore firms—recommended a $7.75-million project to treat all wastes of the area, including American Cyanamid's, at a 28-mgd authority-owned complete treatment works (ENR June 11, 1953, p. 27). Under such a plan, American Cyanamid would have contributed about two-thirds of the wastes and would have paid about two-thirds of the annual cost over a 40-year period.

• **Second study made**—Late in 1953, American Cyanamid intensified pilot studies that were called the key to the pollution problem on the upper Raritan River (ENR March 11, 1954, p. 33). The firm re-engaged Sheppard Powell to consider its particular chemical industrial wastes problem.

As a result of the pilot studies and his further investigations, Powell has recommended biological filtration for Cyanamid's wastes. He also has recommended this novel proposal.

Under the proposal, the authority would pay American Cyanamid a reasonable rate, to be determined later, for secondary treatment of its wastes.

• **Flexibility cited**—Sheppard Powell stressed the desirable flexibility of the plan in discussing it with ENGINEERING NEWS-RECORD last week. Arrangement could be made for a 10-year renewable contract between industry and authority. The arrangement could be reviewable after seven years.

For American Cyanamid, the principal advantage of the new proposal is that it would avoid the 40-year bond issue that might have cost it some $370,000 per year under the original plan for an authority-owned plant.

Maryland Revamps Road Setup

Governor backs plan to abolish three-man commission; single director would be responsible for administration

Maryland moved this week to revamp the administration of its highway program after a special Commission on State Programs, Organization and Finance reported that a full-scale reorganization is in order.

Gov. Theodore R. McKeldin came out in support of the group's recommendation that the present three-man State Roads Commission be replaced by a new Department of State Roads under a single director with control over administration and operations.

Matters of policy would be handled by a three-man advisory board, of which the director would be a member.

McKeldin said he would back measures in the Maryland General Assembly in February which would put these changes into effect. Within 12 hours, a committee of the Legislative Council—which serves as the arm of the General Assembly between sessions—approved the required legislation. This indicated that the bills would go to Annapolis with a top priority label.

In the report hitting at Maryland's present roads setup, the special commission found no clear lines of authority between policy and administration, and between administration and operations.

"The administrative responsibilities of the present Roads Commission have prevented it from developing its policy-making role," the report said at one point.

"It is characteristic of the State Roads Commission as a whole and of the engineering organization in particular that there is no clear division of line and staff activities. At the operating level there is a lack of recognition in the organizational structure of the value of administrative specialization or of administration and its place in the organization. . . . The commission is now in the anomalous position of having engineers work at administration and administrators working on engineering."

The report also found weaknesses in the Roads Commission's right-of-way program, its press and public relations policies, its personnel management, its budget system, its dealings with political subdivisions and the federal government, its condemnation practices and many other operations.

• **Centralize authority**—In the organization advocated by the report, the roads director would be assisted by two deputies, one in charge of administration and the other to handle operations.

Under administration would come offices for finance, personnel, toll facilities, central services, and budget and planning.

The deputy director for operations would have two top aides, one of which would be concerned with administrative details and the other would be in charge of a Bureau of Engineering and a Bureau of Maintenance. In addition, there would be separate divisions for right-of-way, traffic, and research and standards.

The report found that under the present setup, the chief engineer, Norman M. Pritchett, is a "much overburdened official." In addition to his engineering duties, many time-consuming administrative details come under his wing. Under the recommended organization, the Bureau of Engineering could concentrate completely on its assigned task.

In urging reorganization of the roads agency at top level, the special commission said authorities are generally agreed that there should be a clear differentiation between policy and administration—two functions now handled by the present Roads Commission which result in a "diffusion of authority and responsibility."

On a survey of other states, the special commission said it found the trend definitely is away from the type of organization now found in Maryland. Of the 48 states, the report asserted, only 11 do not have single executive officers.

• **Road setup attacked**—The move to abolish the Maryland State Roads Commission is the culmination of a long period of unrest, charges and countercharges which began during last year's gubernatorial campaign.

The unsuccessful Democratic candidate, Dr. Harry C. Byrd, assailed Republican Gov. McKeldin and his Highway Commission for alleged political favoritism in the granting of non-construction contracts.

This attack was picked up by the Democratically-controlled General Assembly early this year, and the Republican Administration staved off a full-scale legislative investigation by one vote in the Maryland Senate.

When a right-of-way scandal erupted last summer, McKeldin again was besieged by Democratic lawmakers to give them funds for a probe. His answer was to ask his own Commission on State Programs, Organization and Finance to make the study which was released this week.

Meanwhile, the Legislative Council carried on a small-scale inquiry into the methods of acquiring right-of-way for approach roads to the Baltimore harbor tunnel. The report on this probe is expected early in December.

Freeways Approved

Milwaukee area road net would cost $350 million

A 46-mi freeway system that will cost an estimated $350 million has been approved by the Milwaukee County, Wis., Board of Supervisors.

The system is an expansion of the County Expressway Commission's earlier proposals for a 38.5-mi network, which would have cost about $50 million less than the 46-mi system.

The board's action means that more than $10 million now can be spent for construction and acquisition of right-of-way for work to be started in 1956.

Another $2 million will be available for advance purchase of land for roads that may not be built for five years or more.

Allotments of federal and state money will be increased for expressway purposes. And, part of the $20 million in increased highway funds that the state will garner from its higher gasoline tax will be available for expressway construction.

Illinois to Spend Record $127 Million on State Roads

Illinois has mapped out a record-breaking $127-million state highway program for 1956, topping this year's $123.6 million, and 1954's total of $84.5 million.

The state will be engaged in a public roadbuilding program in excess of $600 million next year. The total includes: state primary system, $127.3 million; toll roads, $415 million; and construction by counties, cities and townships, $74 million.

Included in the 1956 highway program will be construction of 659 mi of highways; building of 89 new bridges, widening of 54 others, construction of 45 new highway and railroad grade separations; conversion of 59 mi of U.S. 66 into a four-lane, divided expressway to complete modernization of the route between Chicago and St. Louis; allocation of $31.1 million for Cook County projects, including $21.2 million for metropolitan expressway system; and $11.8 million for acquisition of rights-of-way.

Steel for India

Kaiser gets big contract for new Tata facilities

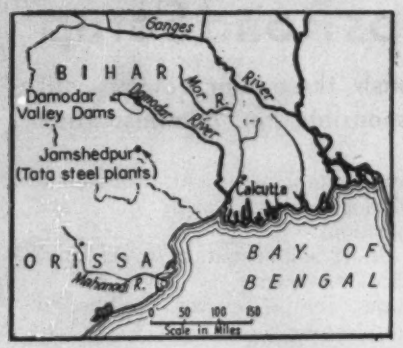
The Tata Iron & Steel Co., Ltd., Jamshedpur, India, has signed an agreement with the Kaiser Engineers Division of the Henry J. Kaiser Co. for the design, procurement and construction of a $130-million steel plant expansion, which will raise Tata's annual ingot capacity from 1,300,000 to 2,000,000 long tons.

The dominant position of Tata in the Indian steel industry is strikingly evident from the fact that the new facilities will raise the whole country's steel making capacity by 45%.

Located at Jamshedpur, which Tata named after the company's founder Jamshedji, Tata has developed into one of India's most modern communities to serve its existing steel plant. The new facilities will be powered with electricity from the Damodar Valley Authority, India's river development agency patterned after our TVA. The dams and the steam power plant of the authority are only a few miles north of Jamshedpur (ENR May 24, 1951, p. 33).

The Kaiser contract is one of the largest ever awarded an American firm. It is scheduled to be completed in 30 months and will involve the purchase of about $50 million of equipment.

Included among the facilities are a battery of 26 coke ovens; a 4,000-ton-per-day sintering plant; a 28-ft-dia blast furnace; several open hearths; a 46-in. blooming mill; a medium and light structural mill; and a continuous bar mill.



The Indian government itself has also been considering going into the steel business, and has offers pending for West German, Soviet and British steel mills. Were all of these to go through, Indian steel making capacity would be raised to 4,600,000 tons. It has been rumored that decision has been made to award the West Germans a contract, but the other two projects are farther away. Apparently the only sure fact is that Tata, India's largest industrial enterprise, has enhanced its leadership in steel, as it has periodically over the past 60 years in such other Indian industrial fields as textiles, soaps, chemicals, locomotive and diesel truck manufacture, engineering equipment, machine tools, aviation, the hotel business and power generation and distribution.

Urban Renewal

New seven-point program outlined for Columbus

A multi-million-dollar, seven-point program of slum clearance and urban redevelopment in metropolitan Columbus, Ohio, has been recommended by the firm of Harland Bartholomew & Associates, St. Louis, Mo., planners.

The plan embraces eight areas within the city and five areas in the adjacent rural area.

It recommends clearing and redeveloping of 950 acres, affecting 45,000 persons in the metropolitan area. Housing in these areas is 50 to 70% substandard, according to Russell H. Riley, a partner in the planning firm.

He outlined seven steps necessary to put the program into effect:

- A minimum standards housing code.
- A comprehensive plan embodying a capital improvements program.
- Detailed study of blighted areas.
- Strict enforcement of housing codes.
- Adequate financing to take advantage of federal aid.
- Housing of displaced persons.
- Active citizen participation.

$65-Million Expressway Hits Snag in Maryland

The Maryland State Roads Commission has reportedly given up hope of being able to start work on the proposed $65-million Northeast Expressway in time to have it completed by December, 1957. That's the date on which the highway tunnel under Baltimore Harbor is scheduled to open.

Chief cause for the delay is inability of Delaware Highway Department to give assurance it will build the connecting highway in time for the facilities to open simultaneously.

This assurance cannot be given until Congress authorizes refinancing of the Delaware Memorial Bridge. This financing also would provide funds for new approach roads.

And, no agreement has been reached yet with the Pennsylvania Highway Department concerning a link with U. S. 1 in Pennsylvania.

The proposed Northeast Expressway, a toll road, would start at the easterly approach of the Baltimore Harbor tunnel, in Baltimore and would run northeast 48 mi to the Delaware line, where it would connect with a new highway to the Delaware Memorial Bridge, below Wilmington.

A branch near the easterly end would connect with a new link to U. S. 1, to be built by the Pennsylvania Department of Highways.

Safety Projects Slated for Turnpike

A safety program involving construction of 100 mi of a steel medial barrier and a complete overhaul of all seven tunnels is scheduled for the Pennsylvania Turnpike.

The project, announced by Gov. George M. Leader, appears to have settled a controversy in the state legislature over whether or not medial barriers should be erected on the turnpike (ENR Oct. 13, p. 26).

Forty miles of the medial barrier will be erected in 1956 and 60 mi in 1957, at a cost of $5 a lineal foot. Through this year, a total of 18.4 mi of barrier will have been set up between the east and west lanes. With the new construction, approximately one-third of the turnpike's entire length will be divided by a rigid barrier.

The 36-in.-high barrier will consist of steel strips strung between steel I-beams that are 12 ft, 6 in. apart. This is the same type of barrier that has already been installed on some sections.

Locations for the new barriers have not been chosen as yet.

Additional plans call for 100 mi of medial stabilization—substitution of concrete or asphalt for grass. The first 40 mi of medial surfacing will go down in 1956, 60 mi more in 1957. Some 107 mi of medial strip had been surfaced up to this year.

• **Tunnel work**—Tunnel overhauls will mean complete relighting and resurfacing on walls and ceilings at an estimated cost of $1 million per tunnel. In addition, the entire ventilation system in each tunnel will be modernized.

The first contract for reconstruction already had been awarded Westinghouse Electric Co., Pittsburgh. Work is slated to begin shortly on the Blue Mountain tunnel.

This new basic safety program represents the first of its type undertaken by the Turnpike Commission. All new construction and overhaul will be financed out of existing commission funds and will involve no borrowing or increase in turnpike tolls.

The governor's announcement is expected to kill a State Senate bill, now in the House Highways Committee.

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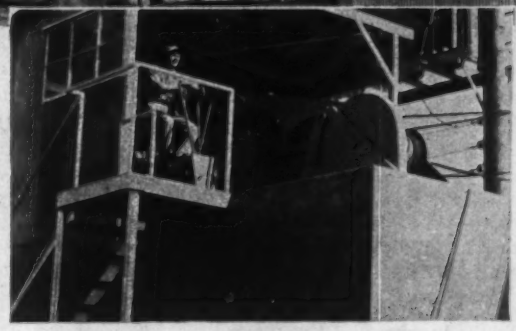

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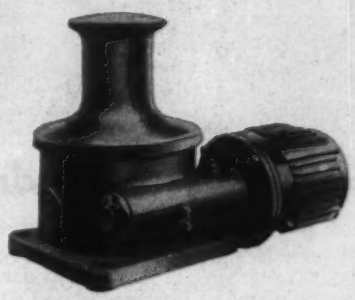

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Landslide Tears Up a Town . . .

. . . Dooms Cathedral and Palace

A landside that destroyed part of the 268-year-old town of Nicolet, Quebec, on Nov. 12 has caused damages estimated at between $5 and $10 million.

This slide, which has involved an area about 1,000-ft long and 800-ft wide, took three lives; tore out part of the main road; and carried away a number of buildings, including half of the palace of the Roman Catholic Archbishop. The local cathedral, adjacent to this palace, has since been condemned.

Nicolet is situated on the Nicolet River on the south shore of the St. Lawrence—an area famous for landslides that have taken place in sensitive marine clay. The recent slide started at the river and may have been caused by erosion of the toe of the river bank.

Housing Reform

New York acts to spur modernization, repair

The nation's largest city last week launched one of the most sweeping housing reforms in its history. The New York City Council passed legislation designed to end overcrowding, upgrade building alterations, require installation of central heating systems, and give owners special tax privileges to encourage rehabilitation and modernization.

Stricter enforcement of the City's Building Code and additional power for the city's Commissioner of Housing and Buildings are provided in the new laws.

Much of the legislation is aimed at 53,000 old-law tenements in the city. These are tenements built before 1901. They presently house nearly 1,500,000 persons.

The same measure would grant tax reductions to owners, permitting them to amortize 75% of the cost of the improvements over a period of nine years. (This is similar to the fast tax write-off program launched by the federal government in 1950 that was designed to spur a new wave of industrial expansion.)

The housing bills passed by the City Council must be approved by the city's Board of Estimate and by Mayor Robert F. Wagner.

Cost Estimate Up

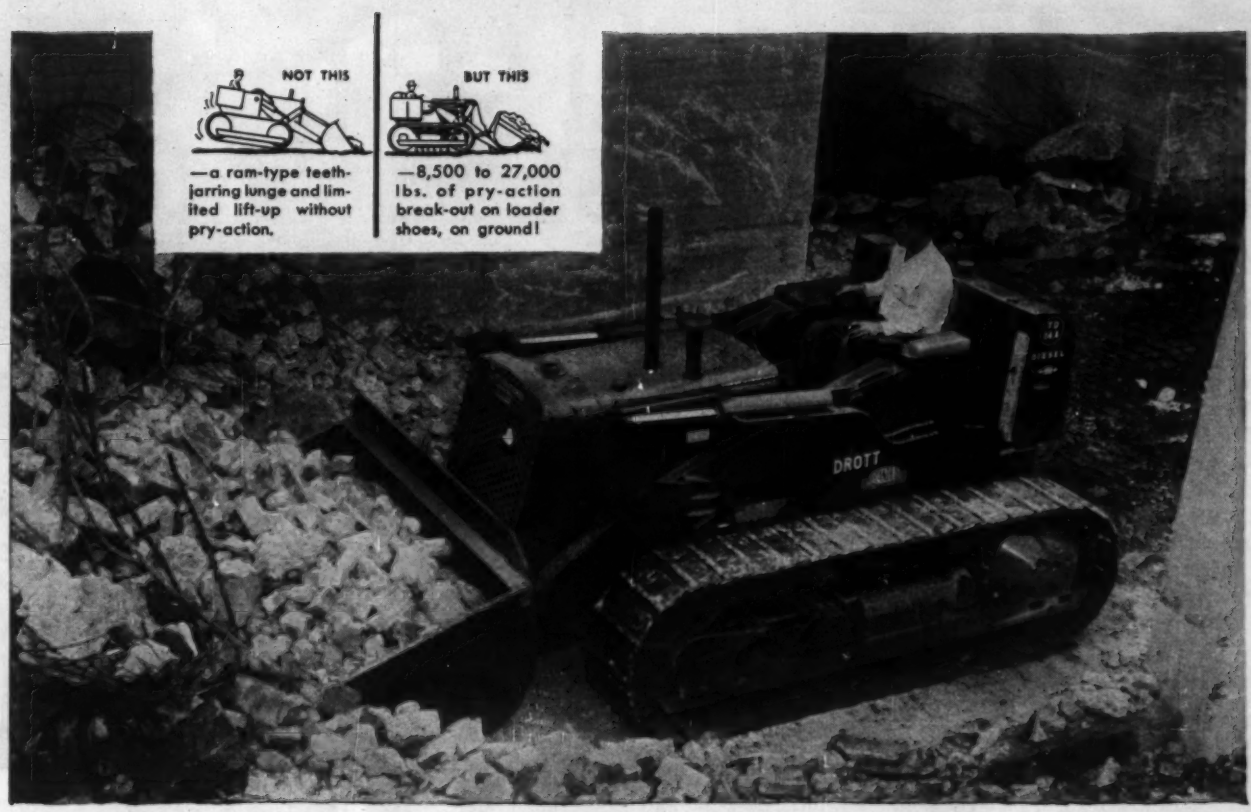
New Memphis power plant to cost $5 million more

Burns and Roe, the New York engineers who are designing the Memphis steam power plant, last week put a new price tag on the facility. They estimated that the plant will cost $105 million, as against earlier estimates of $100 million.

Even with the substantial boost in construction cost, Burns and Roe believe the plant will produce electricity at about the same cost that the city now pays the Tennessee Valley Authority.

In an interim report, the engineers said the 600,000-kw plant would produce power at about four mills per kwhr.

The city, now on the TVA grid, started construction of the plant after a bitter controversy over the so-called Dixon-Yates power contract. Because the city is on the TVA grid, and will be able to produce power at approximately the same cost, Memphis and TVA are expected to interchange power whenever necessary.


NOT THIS
—a ram-type teeth-jarring lunge and limited lift-up without pry-action.
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TURNS HARD DIGGING INTO "GRAVY" compared to "shoeless" loaders!

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See for yourself how patented International Drott pry-over-shoe break-out—*plus bucket roll-back*—gives you tremendous *extra* yardage-getting advantages . . . *COMPARE* these Skid-Shovel capacities: Model TD-6K3, 1-yard; break-out force 8,500 lbs. Model TD-9K3, 1½-yard; break-out force 11,500 lbs. Model TD-14K3, 2¼-yard; break-out force 17,000 lbs. Model TD-18K3, 3-yard; break-out force 27,000 lbs.

You can lunge into hard materials with the "shoeless" type of front-end loader—and get shorted with skimpy loads, pass after pass.

Or you can apply the scientific lever principle of patented pry-over-shoe break-out of an International® Drott Skid-Shovel. And you'll get decisively more digging, bucket-heaping power than "shoeless" loaders of comparable size can deliver.

Pry-action's tremendous yardage-getting force breaks compacted or frozen soils—lifts out embedded rocks—yanks up "anchored" materials. Also, this great *hydraulic pry-out power over big skid-shoes* shunts stresses directly into the ground—instead of to bucket, track frames, and final drives!

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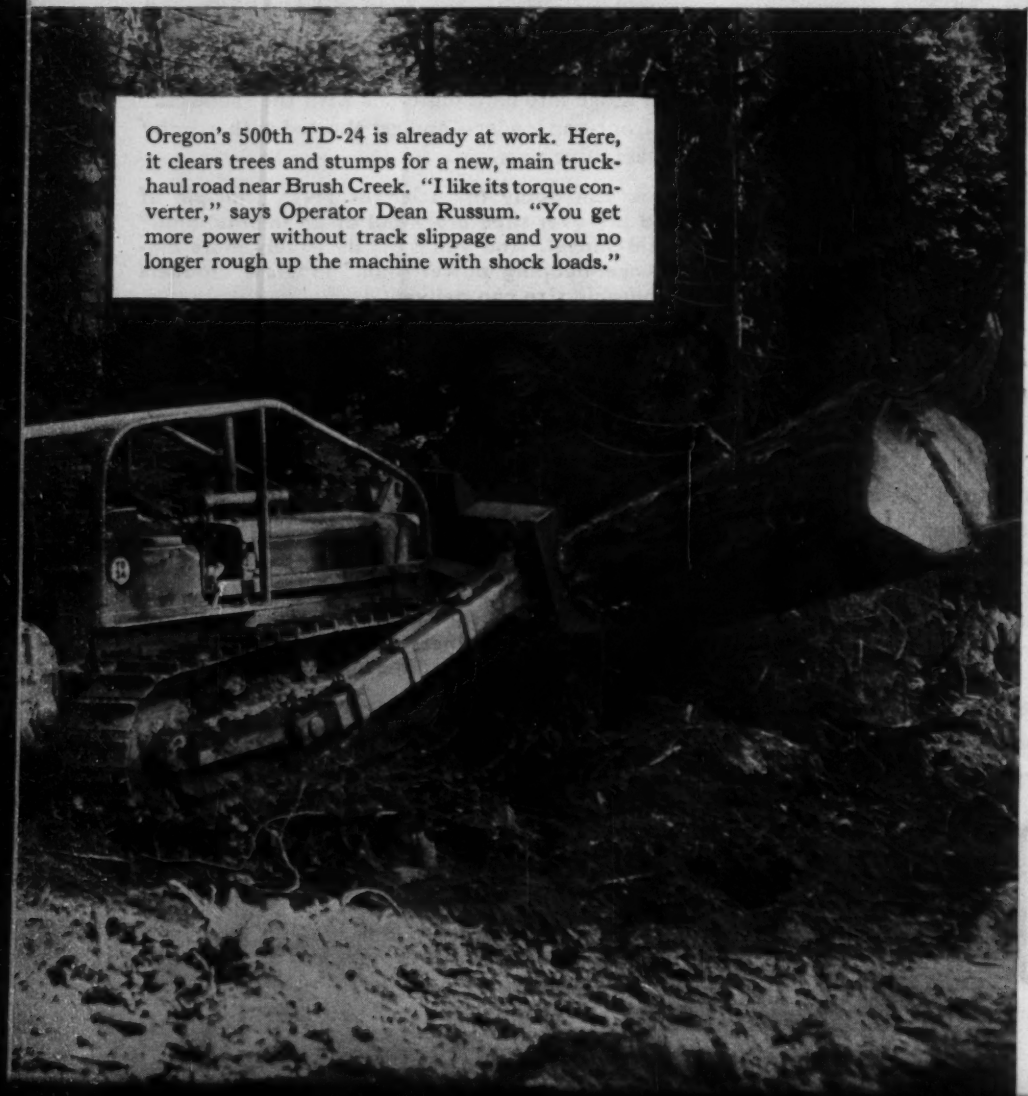
You see this big 200 bhp crawler already at work for Wooley Logging Company, Drain, Oregon.

In rough, tough, Pacific Coast, big-scale logging, mining, and earthmoving, profitable production depends upon positive load-control, up-grade or down. *The TD-24 is the only tractor built that has planet-power steering—which gives you constant load control on both tracks when turning.* That's why the TD-24 out-produces the others so decisively, with dozer, arch, or scraper! Another big TD-24 advantage is its built-for-the-West construction. Records, on fleet after fleet, prove that TD-24's stand up under the toughest conditions—and consistently cost less for maintenance than any other make on tracks! TD-24 high-altitude performance is a big advantage, too—so is its seconds-fast, cold-weather starting and operating ease!

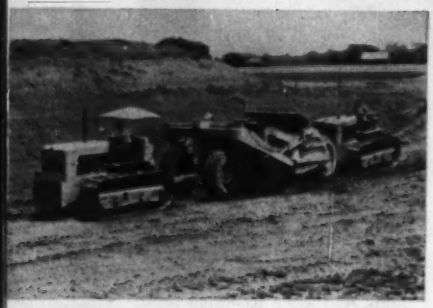


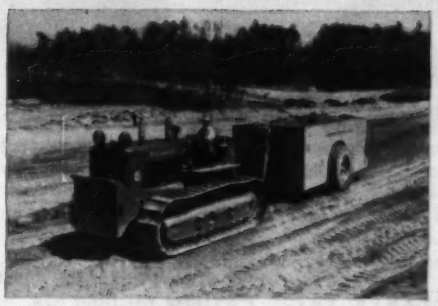
Oregon's 500th TD-24 is already at work. Here, it clears trees and stumps for a new, main truck-haul road near Brush Creek. "I like its torque converter," says Operator Dean Russum. "You get more power without track slippage and you no longer rough up the machine with shock loads."

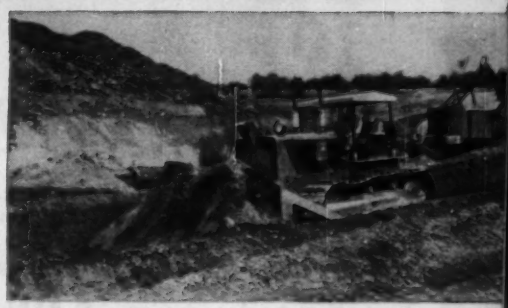
TD-24's

6 for A. J. Orlando on Massachusetts Turnpike—Most of the tractor work on this Whiteside (N.Y.) contractor's 4.89-mile, 2,500,000-yard, $3,340,000 section of the Massachusetts Turnpike is being done by TD-24's. One pushing 3 scrapers accounts for 4,500 pay yards every 10 hours (scrapers on 1,500-ft. one-way hauls). Others pull rippers, level fills, etc.

If you're in the market for a big tractor, you owe it to yourself to check the leader . . . the International TD-24. Five-hundred owners in just one area have proved it their "Best Buy." If it can so successfully and so profitably lick the tough rock, cold weather, and mountain grades of Oregon, it can successfully and profitably lick your high-cost jobs, too! Let us prove its advantages with a demonstration. Call to arrange time and place.







PAY OFF ACROSS THE COUNTRY

6 for J. D. Armstrong on Kansas Turnpike—Of their 9 TD-24's, this Ames (Iowa) contractor reports all have run 5,000 hours or more before needing any repair work. Six on 1.7-mile, million-yard Turnpike section near Emporia, are towing 50-ton rollers, pulling and push-loading scrapers. On hauls of 700 to 2500 ft., they account for 5,000 pay yds. per day.

2 for J. W. Moorman on Buford Dam, Georgia—These "24's", two of the five now owned by Moorman, push-loaded scrapers or pulled 50-ton rubber-tired rollers, 18 hours every day for 18 months. On compaction, they averaged 180,000 cubic yards weekly for the 200-ft.-high, 1630-ft.-long main dam. Moorman's other TD-24's are used to push-load scrapers, and pull or push belt loaders.

3 stripping overburden for Meyer Bros., Pennsylvania—"Proven crawlers," says Partner George Meyer of his TD-24's. "We've used our 3 for 3 years now. They have good balance plus unmatched push power." Right now, rigs are removing 30 feet of shale and clay to uncover a 30-inch vein of bituminous coal. The 2 TD-24's do 80% of the job; a large shovel, 20%.

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4 ALUMINUM-ALLOY PISTONS have a thick crown at the top for rapid dissipation of excess heat direct to the cooling water. Hardened, replaceable, cylinder sleeves, three compression rings, with top ring chrome-plated, plus two oil control rings assure long-lasting, gas-tight seal for high compression ratios of over 15 to 1 . . . providing top fuel and oil economy.

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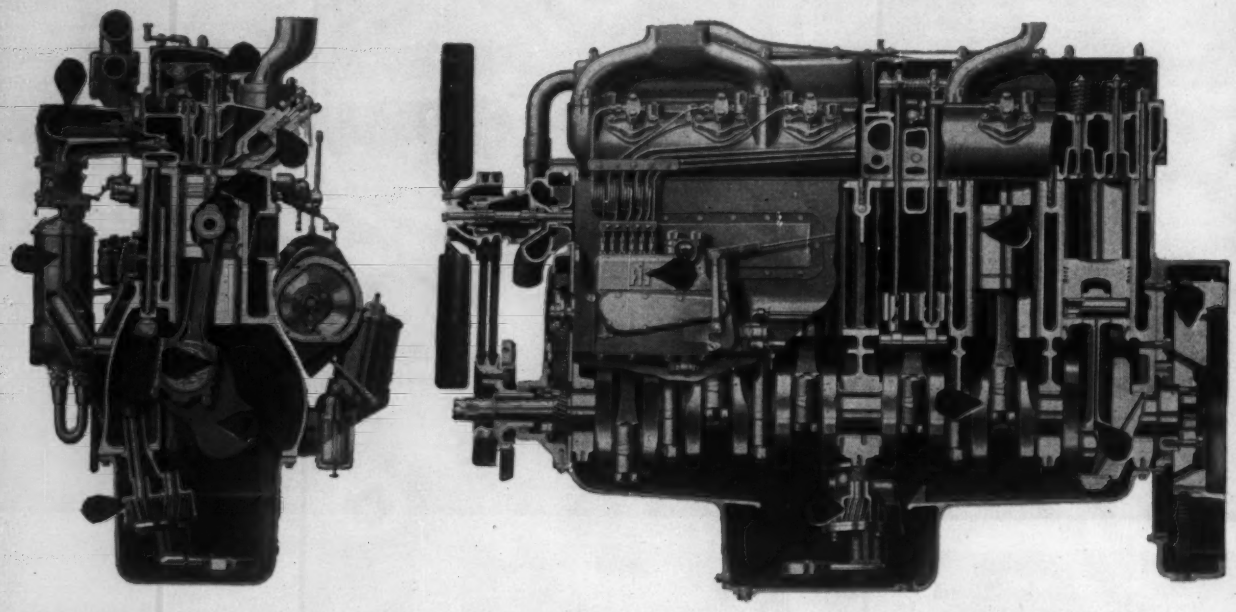

6 NEW IH INJECTION PUMP: Single plunger type on four-cylinder models, twin-plungers on six-cylinders . . . provide all cylinders equal amounts of fuel, precisely metered to load, whether for idling, maximum horsepower, or maximum torque under overload. New, harder injection plungers have up to four times longer life.

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10 HEAVY FLYWHEEL helps to maintain uniform speed under widely varying load conditions. Available to match standard makes of clutches, fluid couplings, and torque converters.

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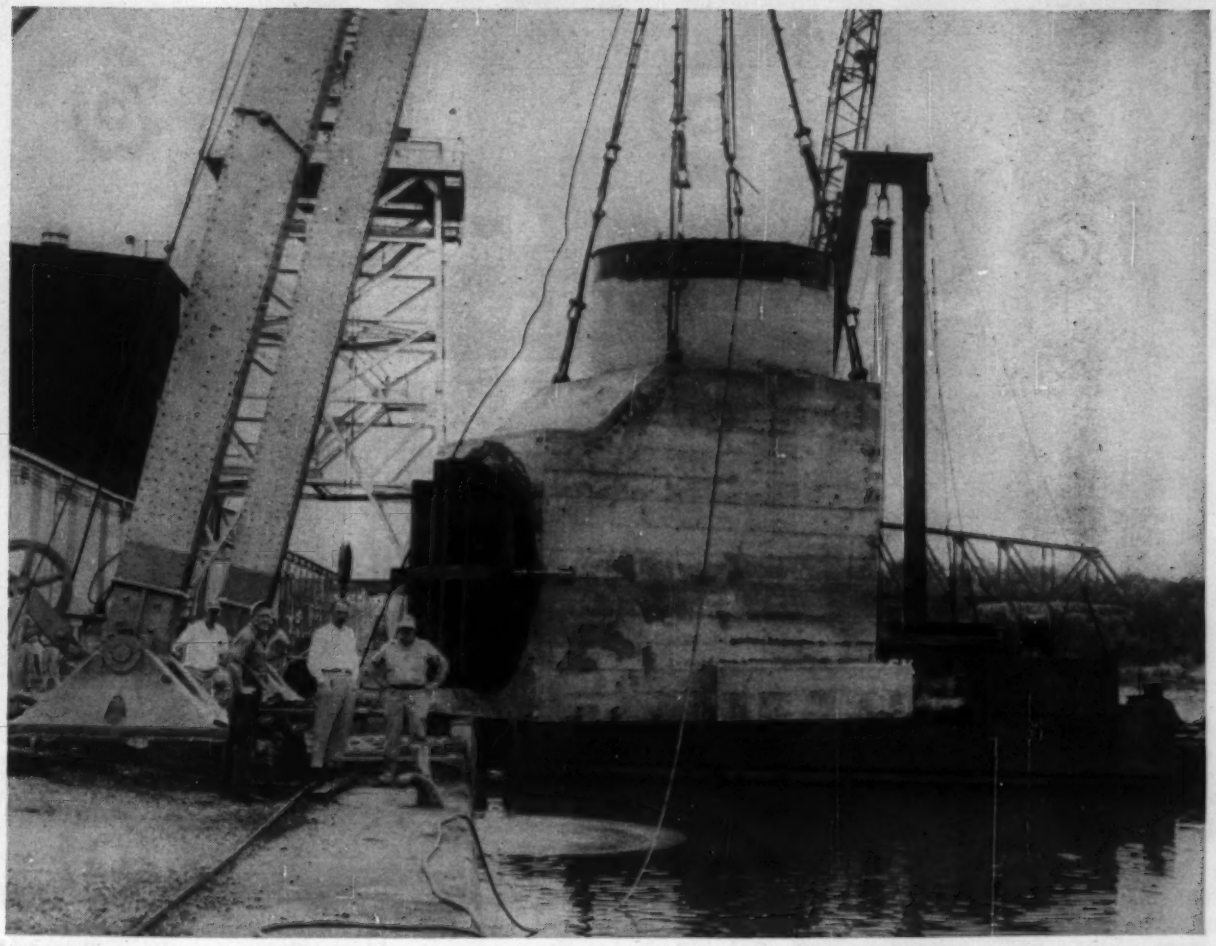
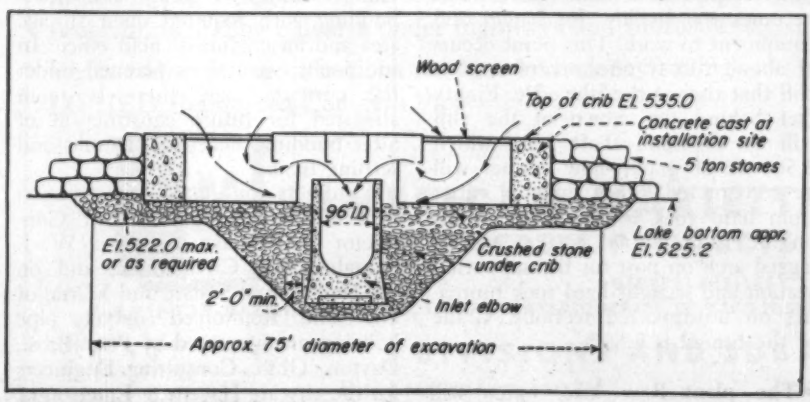


93 TONS OF FLOATING CONCRETE—This 96-in.-dia elbow was bulkheaded and floated 2½ mi out into Lake Erie to become the end piece of a 13,000-ft subaqueous intake.

Cleveland Taps Lake Erie Again

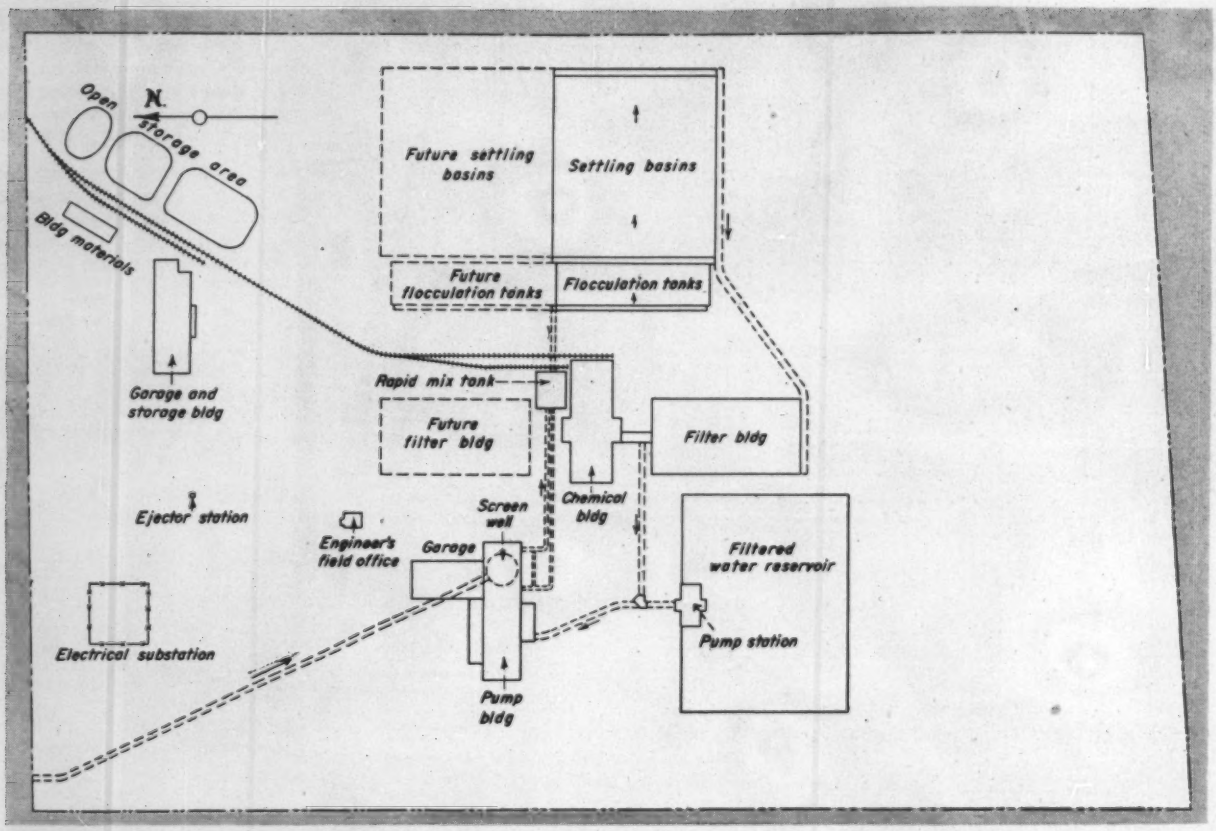
With the recent placement of an intake structure on the bottom of Lake Erie, two and one-half miles from shore, Cleveland, Ohio, has launched the second stage of its $33.5-million program to furnish the city with more and better water. The first stage, completed in 1951, was the $21-million Nottingham plant and intake that furnishes the area with 100 mgd of lake water. That plant, now operating, is located on Cleveland's eastern shore area (ENR, Nov. 1, 1951, p. 43).



ANCHORED ON PREPARED BED, elbow and intake crib have fifty feet clearance to surface of Lake Erie. Solid arrows indicate action of the screen and baffles.

The recently started intake line and the Clague Treatment plant will be located in the western part of the city, and will furnish 50 mgd when completed. Cost of the newer project will be $12.5-million, $4.5-million of which will be spent on intake structure, pipe installation and tunneling. The balance will be used for construction of the plant itself.

First job in connection with the crib installation was excavation for a 96-in. reinforced concrete elbow which will serve the crib at the end of the 8-ft-dia intake pipe. A 16-ft-deep trench was dredged in the bottom of the lake to receive the elbow, then the elbow was made watertight by bulk heading, floated and towed to the site. I was then submerged and laid in place on the lake bottom with a backfill of broken stone to hold it in position. Next excavating job was



PLENTY OF ROOM FOR EXPANSION is available on the 57-acre site of the proposed Clague Water Plant. Drainage (not shown) is carried to lake via 4-ft-dia pipe.

to cut a 75-ft-dia x 3-ft-deep basin, using the elbow as a center, to receive the crib, which also was floated out to position and submerged into place.

• **Crib is steel fabricated**—Most interesting feature of the job is the intake crib, quite similar to that which was installed at Nottingham. Fabricated of 10 WF 21 structural steel members with ¾-in. and 1-in. plate welded to them, the crib is 60 ft in overall diameter and 10 ft high.

Eight diaphram plates from an octagon 48 ft wide (flat to flat), and water-tight areas formed by outer ring, diaphram plate connecting panels, top and bottom plates of the crib make up eight cells that kept the crib afloat while it was being towed to position. A series of octagonal and circular cylinders supported on the diaphram plates serve as a set of vertical baffles with a flow line located 6 ft above the floor of the crib. A 13-ft-wide belt of wood screening panels comprise the only open section in the top of the structure. The screens are 3x12 (nominal) planks, set on end in their frames, 5⅜ in. o. c.

When the crib was in position over the planted elbow, top plates were burned out to an extent that allowed placement of concrete in the cells and ultimate submergence into the prepared bed of broken stone. In addition to the concrete filled outer ring to anchor the crib in its permanent position, a barricade of 5-ton stones was placed against the outer wall of the intake structure to eliminate possibility of lateral movement. As a protection against deterioration, all exposed surfaces were covered—prior to floating—with pneumatically sprayed concrete on 2x2-in. no. 12 wire mesh reinforcing. Outside walls of the crib were coated with special bituminous enamel, for further protection.

The off-shore intake line is now being constructed with reinforced concrete pipe to a point where water becomes too shallow for barges and equipment to work. This point occurs at about 200 ft off-shore of a 50-ft cliff that rises at the lake edge. Eighty feet behind the crown of the cliff will be the land shaft from which 3,500 ft of gravity-flow tunnel will be constructed. Since material varies from hard rock to shale, operations on the 96-in. tunnel portion will be lagged arch on post for the supported section and straight hard rock tunneling on unsupported sections. Grade of the tunnel is 0.66%.

• **The plant**—Raw lake water will flow by gravity to a screen well in the proposed new plant's garage and pump building from which it will be pumped to a flash mixer where chemicals will be added for treatment. Flocculation and settling will be followed by filtration in a rapid sand filter at the plant's first-stage capacity rate of 50 mgd. The filters are designed on the basis of 2 gpm per sq ft: the same rate as the successful filters at the Nottingham Plant. After filtration, chlorine will be added for disinfection before storage in a 15 mg storage reservoir.

The 57-acre tract that has been set aside for the plant is large enough for an immediately proposed electrical sub-station, ejector station for sanitary sewage, a garage and stores building with required open storage area and an engineers' field office. In addition to structures planned under the current stage, there is room allocated for future construction of filter building, flocculation tanks and settling basins.

Contracts on plant construction have not as yet been awarded. Contractor on the lake section is W. J. Meagher, Bay City, Mich., and on the land section Square and Marra, of Cleveland. Reinforced concrete pipe is being manufactured by Price Bros., Dayton, Ohio. Consulting Engineers for the city are Havens & Emerson of Cleveland. E. J. Crown is city's director of public Utilities.

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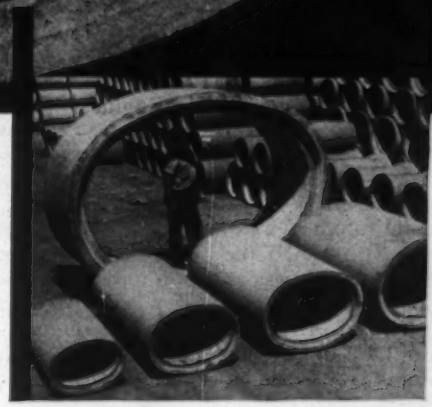

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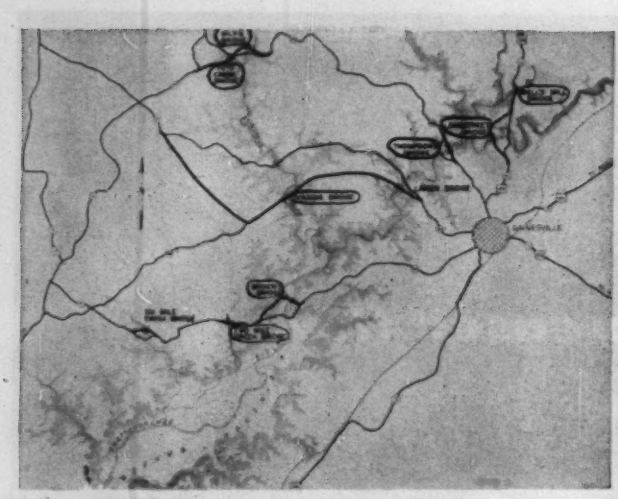


TEN BRIDGES are required as a result of the construction of Buford reservoir, located as shown on the map. Eight of them (circled) furnished the cost data for this article.

CONTINUOUS TRUSS was chosen for the high level crossing of the river known as Brown's Bridge. A four-span arrangement worked out as less costly than others investigated. A continuous through-truss was also used for the Bolling Bridge.

How Bridge Costs Aid In Design

C. D. Williams, Bridge Engineer
Patchen and Zimmerman, Engineers, Augusta, Ga.

Some bridge cost data that may be useful to others were compiled by the firm with which the author is associated when it was called on to design eight medium-sized bridges required as a result of the construction of Buford Dam in Georgia. This dam, being built by the Corps of Engineers on the Chattahoochee River 40 miles northeast of Atlanta, will create a 54 sq mile reservoir, with the attendant relocation of highways and the construction of 10 new bridges, as shown on the accompanying map. The Corps prepared plans for one bridge (Lanier) and the Georgia Highway Department designed another (Six Mile Creek). It is the remaining eight bridges to which the cost data relate.

The bridges were designed between February, 1954 and August, 1955. Brown's Bridge and Two Mile Creek Bridge were designed for H15 loading, all others for H20-S-16-44. Roadway widths vary from 22 to 26 ft. Brown's Bridge is a 4-span continuous truss with open steel grid deck, and Bolling Bridge is similar, but has only three spans and is equipped with a concrete deck. Thompson's Bridge and Longstreet Bridge are of semi-through continuous plate girder type,

1. The unit prices used in computing the costs are as listed in the following tabulation. While lower unit prices might be obtained under conditions of competitive bidding, it is believed that the prices used are comparative, and provide useful data.

Open grid steel deck	$ 3.80 per sq ft
Reinforced concrete deck	75.00 per cu yd
Reinforcing steel	220.00 per ton
Truss steel, low alloy	450.00 per ton
Truss steel, carbon	400.00 per ton
Floorbeams and stringers	350.00 per ton
Rolled beam spans	300.00 per ton
Girder steel	375.00 per ton
Bearings and expansion	1,000.00 per ton
Handrail	8.00 per lin. ft
Pier concrete	65.00 per cu yd

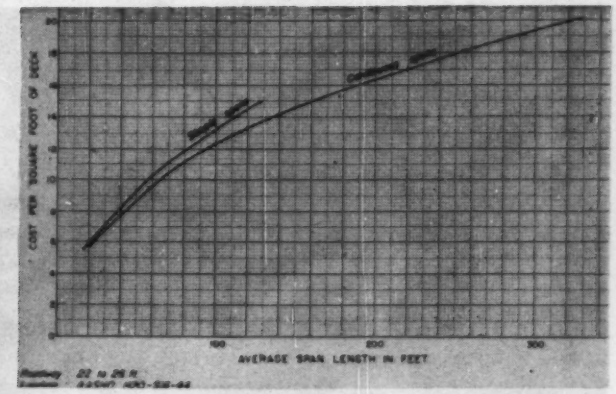
2. The curves provide a convenient tool that can be used to find the economical number of spans for a given crossing. As an example, an application can be made to the data of Brown's Bridge where the main structure was determined to be 1,176 ft long. A four-span continuous truss was selected, and it is desired to know whether a three-span or five-span bridge may have been more economical.

The following data may be taken from the superstructure curve (chart, upper right).

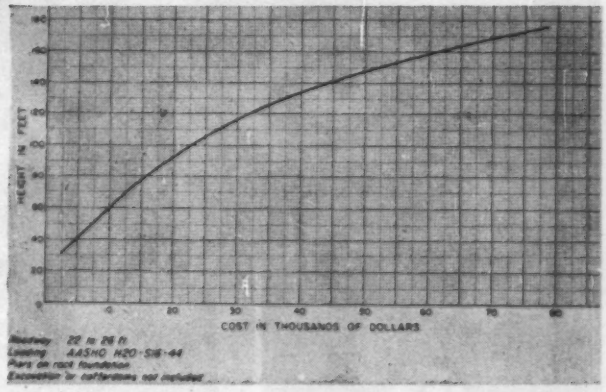
Number of spans	*Span lengths*	*Average span*	*Cost psf*	*Cost of 1176 ft of 24 ft roadway*
3	362-457-362	392	$21.70	$612,460
4	261-327-327-261	294	19.20	541,900*
5	204-256-256-256-204	235	17.55	495,330

(*Practically equal to second low bid)

CONTINUOUS BEAMS on hammerhead piers provided an economical design for Two Mile Creek Bridge. Three other bridges were similar while the two remaining bridges in the program were a deck truss and a semi-through girder.



COSTS of superstructure (above) and substructure (below) in terms of average span length and pier height respectively for the eight Buford reservoir bridges.



Selection

and the four others are continuous steel beam structures. All of these bridges have concrete decks. Foundations for four of the structures consist of two-shaft open-type piers, while hammerhead piers are used for three of the continuous beam bridges and steel pile bents for one of them.

Several different designs were studied for each of the bridges before a final selection was made, and it is from the data resulting from these studies that the two accompanying cost curves were drawn. One curve shows the probable cost of superstructure based on the average span length under consideration, the other the probable cost of concrete and steel in piers, based on the height of pier.

These curves are for two-lane highway bridges, for piers resting on rock, and do not include cost of excavation, piling or special construction such as cofferdams. The piers included in the data are not subjected to longitudinal forces, but were designed for lateral wind on the piers.

The tabulations at the bottom of the page record (1) the unit prices used in making the cost comparisons on the Georgia bridges and in (2), (3) and (4) the applications of the curves to a study of costs of different numbers of spans for the Brown's Bridge

3. Assuming that the two end piers will be practically the same in the three cases, it is also necessary to find the probable cost of two, three, and four piers for the respective three schemes. The heights of piers are scaled from the profile of the crossing, and the costs taken from the substructure curve (chart, bottom right), with the following results:

Number of spans	*Pier height*	*Cost per pier*	*Total for scheme*
3	160	$61,500	$114,000
	150	52,500	
4	147	50,000	
	172	74,000	
	139	44,000	164,000
5	133	39,500	
	171	73,000	
	161	62,500	
	133	39,500	214,500

4. An approximate quantity of unclassified excavation is obtained from examination of the profile, and is estimated to cost $13 per cu yd. Further examination shows that, in the case of a bridge with three or five spans, one pier will have to be located in the river; an estimated extra cost for cofferdam is added to these schemes for this contingency. The final comparison works out as follows:

Number of spans	*Superstructure cost*	*Pier cost*	*Excavation cost*	*Cofferdam cost*	*Total*
3	$612,460	$114,000	$5,500	$25,000	$756,960
4	541,900	164,000	9,250	—	715,150
5	495,330	214,500	13,500	25,000	748,330

It is thus seen that the four-span bridge is probably more economical than either the three- or five-span schemes.

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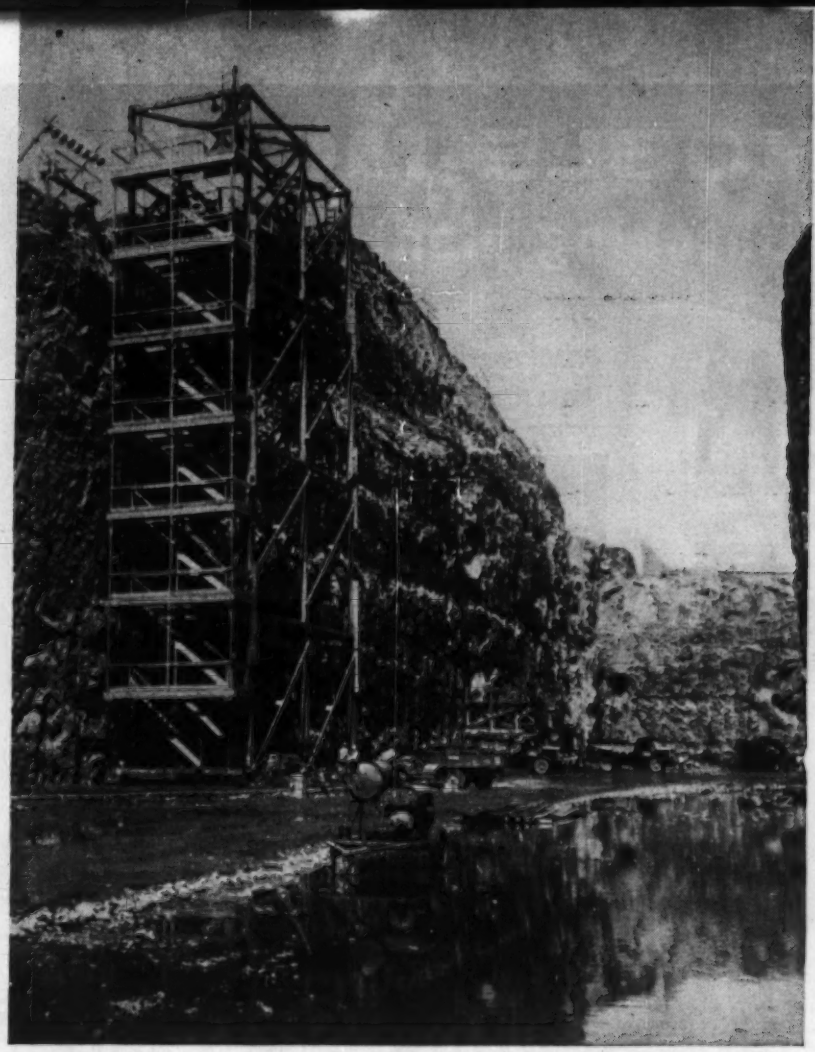

DOWEL RODS extend out of rock face to tie in with concrete wall to be placed later.

JUMBO SIZE is this four-level, movable drill platform built for work preliminary to concreting navigation canal at The Dalles Dam.

Dowels Protect 130-ft Lock Wall

The 130-ft deep walls of the navigation lock at The Dalles Dam are strengthened by 30-ft long, No. 11 anchor bars serving both to pin rock slips and as concrete anchor bolts. The work is believed to be one of the most extensive rock pinning jobs ever undertaken.

The main navigation lock chamber —675 ft long and 86 ft wide—is carved out of nearly solid rock formed by massive balsalt flows. Original plans called for concrete lining the lock wall faces with a nominal anchor installation binding concrete to the rock. During excavation, however, it was necessary to pin rock in some sections to safeguard workers against falling rock. The need for pinning was discovered fairly early in the work by a return of air dust some 30 to 40 ft from the point of drilling. This indicated to the government's geologist on the job the necessity for extra rock pinning in areas near the top of the excavation.

This operation was so effective that it was decided to combine the anchor rods with a program of pinning the entire rock face. Such an operation would not only serve as a protection but would substantially guarantee the integrity of the lock wall faces.

To accomplish the work, the contractor—Atkinson-Ostrander Co.—built a 130-ft high portable jumbo that included four platforms for rock-drilling and anchor rod placing operations. The scaffold—45 ft long and 25 ft wide—is skidded along a platform of timber-supported rails. A tractor provides motive power.

Rods are positioned in a diamond-shaped pattern and are located on 10-ft centers horizontally and 5 ft centers vertically. Thus for each positioning of the scaffold, some 75 drill holes are needed. With all drilling being accomplished by wagon drills, it took several days in each position to drill the necessary holes and grout in the 30-ft long, No. 11 rods. The rods extend 3½ ft out from the rock face.

Each set of holes was grouted immediately by inserting a ½-in. pipe and filling the hole with a neat cement grout. Maximum grout placing pressure was about 3 psi.

Concreting the lock wall face is carried out in 5 ft lifts using steel forms. Concrete is brought to the job in buckets on trucks and hoisted into place by cranes. At present, satisfactory placing rates are being reached with one revolving crane, with work progressing from the downstream end of the lock. More than 25% of the 251,000 cu yd total is in place. In the spring when the peak concrete placing rate will be reached, three cranes will be used.

The work is a part of the navigation lock contract for The Dalles Dam Project for which a $13 million contract is held by Atkinson-Ostrander Co., a joint venture of Guy F. Atkinson Co. and Ostrander Construction Co. J. Morton is project manager.

The Dalles Dam is a project of the Portland District, Corps of Engineers, Col. Jackson Graham, District Engineer.

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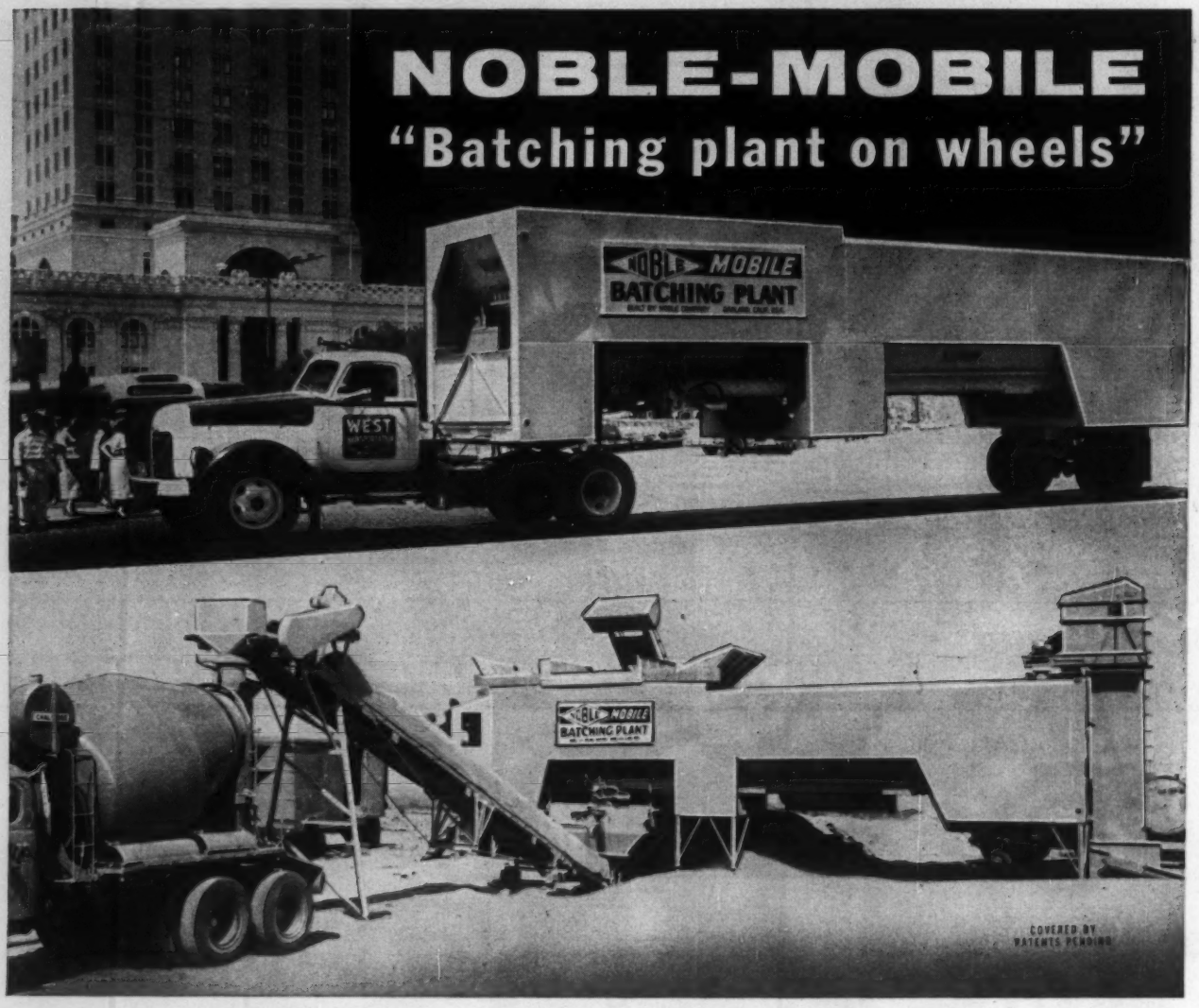

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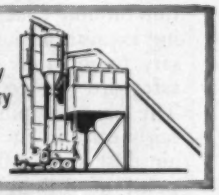

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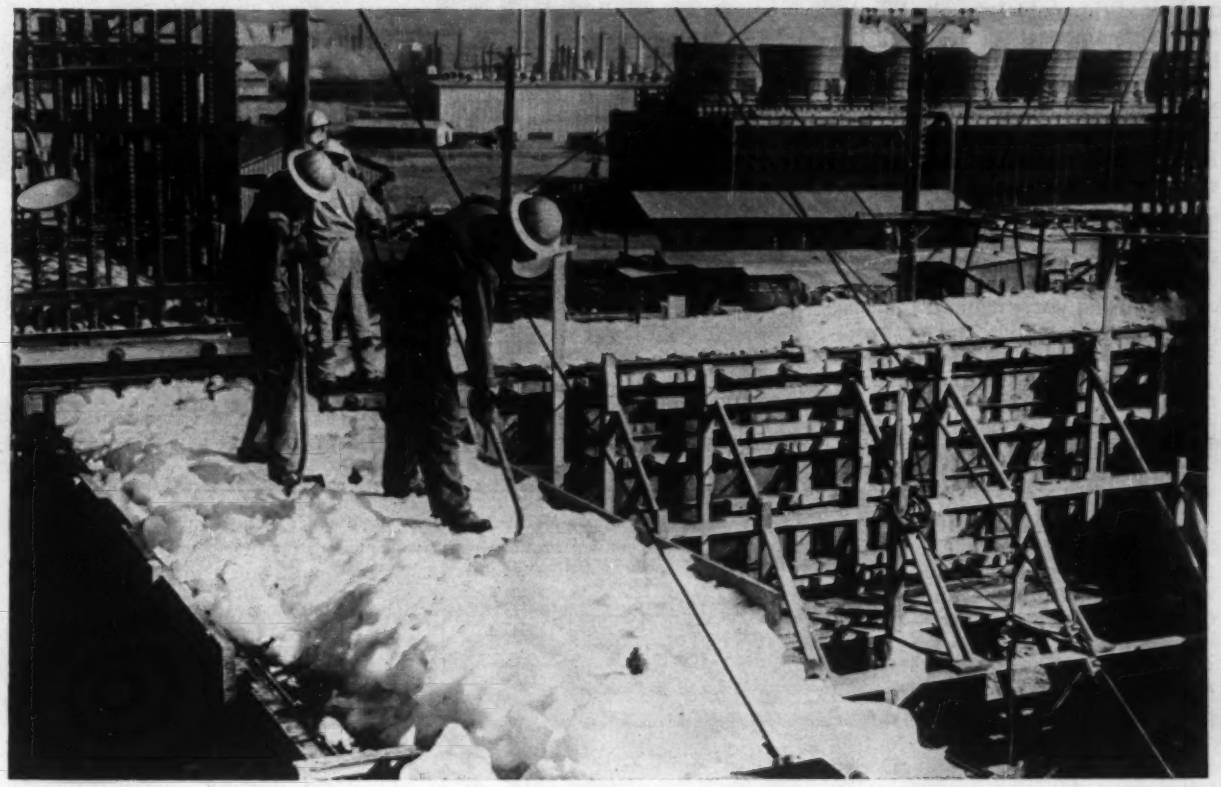


Crushed Ice Melts Through Preplaced Aggregate to Aid . . .

Shrinkage Control for Massive Beams

How do you minimize shrinkage in casting 34-ft clear span concrete beams that are 5x7 ft in section? That was a critical problem faced by Bechtel Corp. engineers in designing an oil refinery structure for the Avon Flying A Refinery of Tide Water Associated Oil Company in California.

Their answer was three-fold: (1) pump grout into preplaced aggregate (using Prepakt concrete method); (2) precool aggregate and grout; and (3) use dense, low-absorptive aggregates.

Result is first use of the Prepakt method in an above-ground, space-frame-type structure. Because of the size of the members, the job is almost better classed as mass concrete rather than structural concrete. The frame extends 96 ft above grade level and measures about 50 by 100 ft in plan.

The massive concrete structure will support two heavy vessels required for a fluid coking unit whose capacity of 42,000 bbl a day makes it the biggest fluid coker ever built and accounts for the unique nature of the structural problems. The process in which it is used was originated by Esso Research and Development Co., a Jersey Standard subsidiary, and licensed to Tide Water for use. Tide Water is also building a fluid coker at its Arlington, Del. refinery on the East Coast.

The concrete structure must support extremely heavy vertical and horizontal loading. Total permanent operating load on the foundation is some 16,000 tons. And the exchange of fluid coke from one vessel to another sets up dynamic horizontal loads that are additive to the 10% gravity earthquake load for which the frame is designed. Result is maximum horizontal design thrust of 1,400 tons.

Preliminary studies showed that the reinforced concrete structure would be a quarter of a million dollars cheaper than structural steel fireproofed with concrete. So the structure was designed in concrete. But, even with a ⅓ increase in allowable stresses for earthquake and live load, an extremely heavy frame results.

Main columns are 6x8 ft in section and main beams are 5x7 ft in section. Primary beam reinforcing consists of 2 to 3 closely spaced layers of bars measuring 2⅜ in. dia (4 sq in. area). Columns, on the other hand, have 44 of the 2⅜ in. bars. These bars are available from several sources with rolling by special order. (Lacking a standard designation, Bechtel engineers call the heavy reinforcing No. 19 bars.) Reinforcing in the structure totals 800 tons of 2⅜ in. dia bars and 100 tons of other size bars.

All bars are joined in place by thermit welding. Reason is there is not enough room to lap the bars, and ordinary welding is too slow and inefficient. Column bars are saw cut to ⅛-in. tolerance. This is done to simplify erection procedures by allowing reinforcing cages to be prefabricated and still maintain the exact end clearances required for thermit welding.

• **Shrinkage control**—Once the size of the structure and its elements was established, Bechtel engineers were faced with the problem of minimizing cracking due to shrinkage particularly in the heavy beams and top slab. And they wanted to find a means of placing concrete through the maze of closely spaced reinforcement. Prof. R. E. Davis of the University of Cali-

fornia was retained as consultant. His analysis of the problem resulted in the three recommendations listed at the beginning of this article.

Aggregate used was a hard Sierra-Nevada granitic gravel imported from natural deposits along the American River east of Sacramento. High density and low-absorptive properties, together with careful grading of the rock, all contributed to minimizing total shrinkage of resulting concrete.

Precooling the aggregate and using cooled mixing water reduced the peak temperature from the heat of hydration—an important factor in control of shrinkage. Crushed ice added to the mixing water reduced the grout temperature to the neighborhood of 60 F.

Aggregate was cooled after it was placed in the forms by an almost continuous 24-hr bath of ice. The snow-like material was clam-shelled on top of the beams and permitted to melt through the aggregate. This process was kept up until just before grouting of each lift was completed.

• **Grout mix**—Advantage of the Prepakt method is that the aggregate—being already in place—has point-to-point contact which further contributes to shrinkage reduction. Design called for a 4,000-psi concrete at 60 days. To obtain this with the aggregate used (carefully graded from ¾ in. to 2½ in. in size) required the following mix: 2½ parts of type II cement, one part of fly ash and 3½ parts of carefully graded fine quartz sand. To this was added enough mixing water to provide a flow cone reading of 17 to 20 seconds. An intrusion-aid admixture was added.

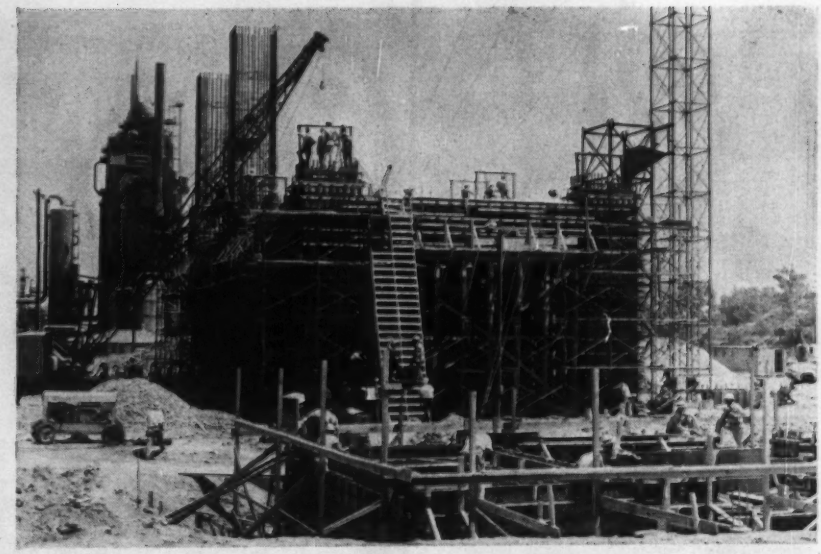
Foundation for the structure was built with ordinary concrete—using the dense aggregate, however. Above foundation level the Prepakt concrete method was used. The structure was built in three stages, each taking the frame up to just above a beam.

One grout pipe served each column. And grout pipes were spaced at about 5-ft centers on the beams. Grout pipes were kept immersed in the grout and slowly raised as the grout levels came up. As the grouting proceeded, any water remaining in the forms from the ice-cooling of the aggregate was brought up on the surface of the grout. Grout pumping continued until a uniform layer of rich grout appeared.

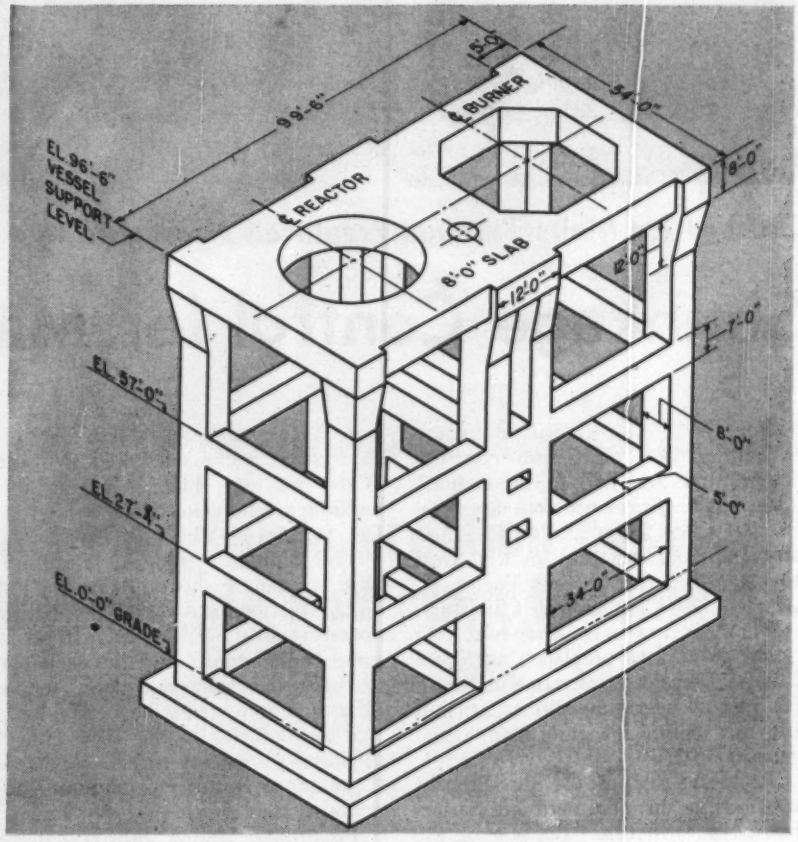
Tops of the beams were finished by placing a pea gravel aggregate mix on the fresh grout surface. The smaller aggregate was working into the grout. Then, at the proper time, the surface was floated and troweled to result in a dense, smooth surface.

Some trouble was encountered with the forms during the first pour. Forms were made up of relatively small panels of steel-backed plywood. Joints between panels although adequate for ordinary concrete would not hold the grout due to its fluid nature. Several number of workmen were needed to plug holes to minimize leakage.

On subsequent lifts, forms were made of full-size plywood sheets with 2x6 wood studs as backing. These were tight enough to reduce grout leakage to a negligible amount.



FIRST USE of grouted preplaced aggregate type concrete in a space-frame-type structure comes in the construction of this heavy concrete structure at Tide Water's refinery.



HEAVY BEAMS and columns are needed to resist extremely high loads.

• **Administration**—A. J. Orselli, vice-president of Bechtel's refinery division, is in over-all supervision of the work with Fred W. Meyer, vice-president of engineering, and T. W. Moran, project manager of construction. Structural design for the refinery structure is under the direction of H. K. Schlegel, chief structural engineer for the refinery division, with E. C. Lee in direct charge of design.

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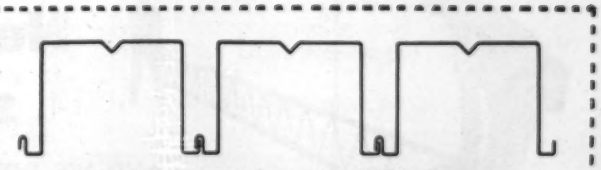

Individual units are 12" wide by 7½" high, rolled from metal-coated steel in 18, 16, 14 and 12 U.S. Gage. Standard lengths up to 32 feet maximum.

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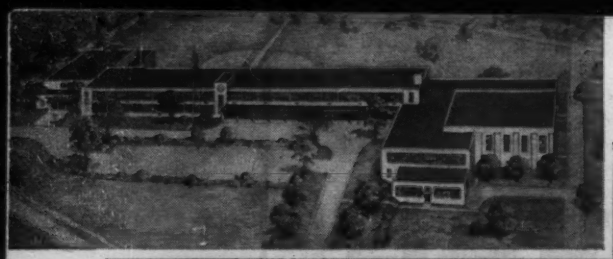
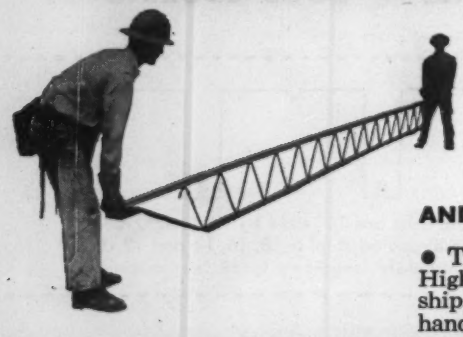


Richland Junior-Senior High School, Richland Township, Allegheny County, Pa.
Architects: Joseph Hoover, and Franklin, Douden & Associates.
General Contractor: Rea Construction Company



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AND WE GOT STRONGER, SAFER, MORE MODERN BUILDINGS, TOO!"

• The new Richland Junior-Senior High School plant in Richland Township, Allegheny County, Pa., is as handsome and modern as you'll find anywhere.

Built solidly on and around a strong frame of structural steel, fabricated and erected by American Bridge, it bids fair to become a model for similar light occupancy structures.

Contributing to the strength and safety of the buildings are AmBridge steel joists, which are used throughout for all roof and floor supports.

105 tons of new-design AmBridge standard steel joists, and accessories, and 60 tons of AmBridge long span steel joists and accessories were used for the roof supports of the 72′ x 154′ auditorium; for the floor and roof supports of the 61′ x 325′ classroom area; and for the roof supports of the 120′ x 124′ gymnasium.

In the words of the contractor: "On this large school, these new-design AmBridge steel joists saved us time and money, and we got stronger, safer, more modern buildings, too."

For further information about the time-and-labor saving advantages of new-design AmBridge steel joists, contact the nearest sales office, or write.

FREE BOOKLET FOR YOU: If you design or build light occupancy structures, this free booklet points the way to faster, simpler, better, more profitable construction. It is the only complete steel joists catalog with design information for spans up to 120′ which you can use to improve your construction methods . . . and make more profit out of future jobs. ***WRITE FOR YOUR FREE COPY!***

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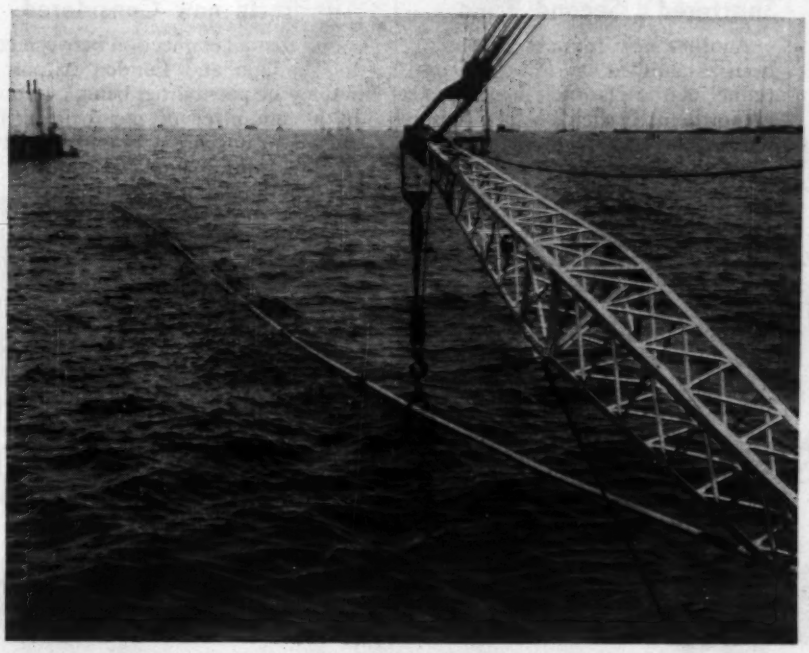

Aluminum Pipe Used to Fight Teredo

The voracious appetite of a small aquatic animal called the Teredo has prompted construction of what is thought to be the world's first permanent underwater oil pipeline of aluminum.

The 1,000-ft line recently was welded and submerged in Lake Maracaibo, Venezuela. Engineered by Creole Petroleum Corporation with the assistance of the Aluminum Company of America. The installation will carry crude oil from an underwater well of Creole's Bachaquero Field to a flow station on the lake shore.

The pilot installation of aluminum pipe came after a protective coating applied to a steel pipe installation was attacked by the barnacle-like Teredo. With the coating damaged, the ferrous metal was exposed to corrosive action by Lake Maracaibo's brackish waters.

Approximately 700 ft of 4-in. ASA Schedule 40 pipe was submerged to carry oil at a depth of 15 to 20 ft below the lake surface. Pipe was supplied in 40-ft sections, each weighing 150 lb.

Installation of the pipeline began with double-jointing of the sections. The resulting 80-ft units were loaded on the regular pipeline-laying barge of Creole Petroleum and welded into a continuous line. The aluminum pipe was anchored to the lake bottom with 280-lb concrete weights set 40 ft apart. At each end of the line, aluminum pipe risers emerge vertically from the bottom. One terminal is connected to the well, the other to the flow station. Test sections have been installed in each riser to allow easy, periodic examination of the line.

Aluminum risers are reported to have been used on some of the steel lines in wells operated by Creole in the Lake Maracaibo oil fields for periods exceeding 10 years.

Peru's Capital May Get Metropolitan Subway System

Plans for a metropolitan subway system for Lima, Peru, have been submitted to the Peruvian government by two French firms. No details are being made available until plans have been studied.

The French companies involved are Societe Parisienne pour l'Industrie Electrique and Societe Generale de Traction et d'Exploitation. Both are essentially financial organizations grouping several operating companies and manufacturers of railway equipment.

It is understood that current negotiations mainly involve the amount and duration of credit which the French firms will be willing to extend to the Peruvian government.

Societe Parisienne operated the Paris Metropolitaine subway system until it was taken over by the city of Paris in 1948.

(*International continued on p. 46*)

Indian Dam Opens for Business

The second multi-purpose dam of the Damodar Valley Corp. has been completed at a cost of $21 million. The Konar Dam will provide perennial irrigation for 104,000 acres and will have a generating capacity of 40,000 kw when the power plant is installed at a future stage. Originally designed as an earth dam, the 12,080-ft long Konar has been constructed accordingly but with a concrete spillway 160 ft high and 910 ft long. A feature of the design is the incorporation of hollow spaces between the spillway blocks; in this way 7% of the concrete volume was saved. Further, the earth embankment has been protected against erosion by the construction of 50-ft high concrete retaining walls. Completion of the Konar marks the end of the first stage of construction work on the project.

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For directing operations and for getting instant action in case of break-down, 2-way radio is a vital cost-saver.

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When no power is available, such as on bridges or towers, or in areas where vehicles cannot operate, you can still have 2-way radio with portable self-powered PAK-FONES. Loudspeaker permits unattended reception. Several types and sizes to suit each requirement.

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Tunnel Driving Record Shattered a Second Time

Another new tunneling record has been established on the huge outlet tunnel of the Harresele hydro project in northern Sweden. When this job was first reported in the Sept. 1, 1955 issue of ENGINEERING NEWS-RECORD, p. 31, the record advances for the 1,410 sq ft top heading stood at 145 ft in one week and 515 ft in a single month (June).

According to word just received from Ragnar Ahlstrom, chief engineer of the job, the weekly record has been raised to 157 ft, while during August a total advance of 582 ft was made, representing a monthly excavation total of 30,000 cu yd. The tunnel traverses granite and requires no shoring. The driving methods and equipment being used were described in the above-mentioned article.

Monorail Link With London Airport Is now Considered

A monorail connection between central London and London Airport is among the possibilities being examined by a committee of members of the British Transport Commission, two British airlines and the Ministry of Transport.

The Minister of Transport indicated that the monorail was not the only possibility, but when questioned about an underground link, he said that the cost of a tube system was so high that it could not be considered a "likely starter."

The committee is also investigating the practicability of an ordinary rail spur from one of the existing lines.

An experimental monorail system has existed in Glasgow for several years and the principle has also been developed in Germany.

Welds Checked with Ultrasonic Device

After several months of experimentation with various types of nondestructive weld tests, the consulting engineers on Toronto General Hospital's $20 million building expansion specified that ultrasonic testing be used. The application of this testing method is thought to be the first of its kind in Canada. A special portable apparatus manufactured by Kelvin-Hughes in Great Britain was selected as being the most suitable for working on open steelwork above ground level. The device is easily carried by one man and operates on power developed by a small unit on the ground. With proper training, the operator can distinguish porosity, slag inclusions and cracks and determine the extent of such discontinuities in the weld metal. On this job, the quality of the butt welds between beams and columns was of primary concern. Experiments prior to selecting the testing method were carried out by Canadian Inspection & Testing Co., Ltd. in cooperation with the consulting engineers, Wallace-Carruthers & Associates, and the fabricators, Dominion Bridge Co., as well as other fabricators of welded structures in the Toronto area.

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Here is a section of the "Miracle Mile" Arcade located in Monroeville, Pa. It is the 10th Casto Shopping Center with Tectum Roof Decking—a total of nearly two million square feet. Developed by Don M. Casto organization of Columbus, Ohio. Architect: C. Melvin Frank, Columbus, Ohio.

Tectum is more than a product—it's a method! It lets you eliminate 2 out of 3 operations in modern roof construction. Tectum provides you with a (1) roof deck; (2) insulation; (3) acoustical material—all in a *single* plank! Think of this in terms of tremendous savings in time, labor and money.

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Tectum has a lot more to offer—and, it's described fully in a booklet "In the Market for a Quality Roof Deck?" Send the coupon for your copy today. If you would like immediate service, call your local Tectum distributor.

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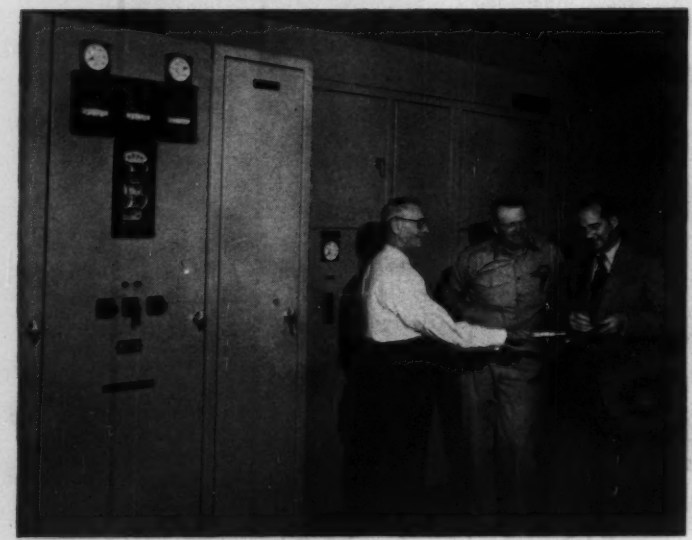
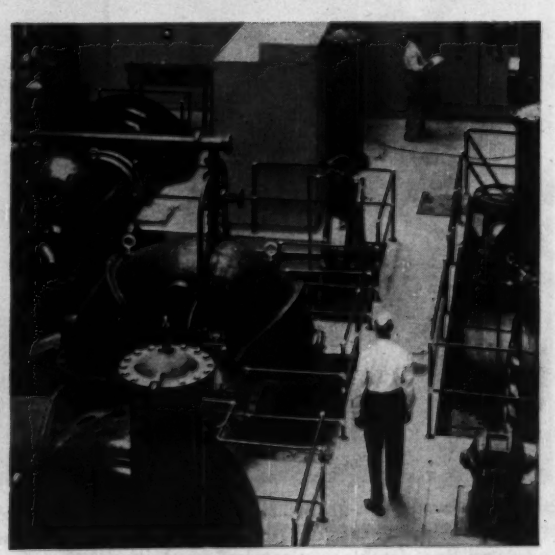
ENGINEERING
REPORTS:

MILLIONS OF DOLLARS worth of crops in Reclamation District 108 depend on reliability of G-E pump drives and controls for vital irrigation. Aerial view shows Riggs Ranch automatic pumping station, one of several serving district.



RELIABILITY of G-E metal-clad switchgear and Limitamp control helps assure continuity of service at El Dorado station. Harold Wood, consulting engineer; Kenneth Brown, District 108 manager (l-r) planned installation with L. S. Barry, G-E Sales Manager.



42 YEARS OF SERVICE is the outstanding record of five General Electric 650-hp motors, several of which are visible above, in Rough and Ready pumping station. Limitamp control in background was added in 1949.

58,000-acre irrigation project proves performance, reliability of G-E equipment and service

Dependability of G-E equipment and service "could not be better" says Kenneth R. Brown, manager of Reclamation District 108 of Calif.

Reclamation District 108, a co-operative of individual farmers in Colusa and Yolo counties of California, electrified its irrigation pumping system half a century ago. It has been General Electric's privilege to provide most of the electrical equipment for this model project over the years.

"We can count on G.E.—we've learned that from experience," say Blackie and Wood, consulting engineers of San Francisco, who specify G.E. 100 per cent in expansion and modernization of the District's system. And manager Brown adds, "Both the products and the service we get from G-E Sales and Service Shop people could not be better."

Proved in service at the several pumping stations on the Sacramento River which comprise District 108 are 55 G-E pump motors from 25 to 650 hp, and many units of G-E control. Built for long operating life, G-E Tri-Clad* motors at automatic pumping stations require little or no maintenance. G-E Cabinetrol* and Limitamp* control panels help protect circuits, give centralized motor control, are custom-assembled from pre-engineered components to save engineering and installation time at the site.

Years of engineering experience are available to G-E customers on projects like this. When you plan to install equipment or electrify tools for heavy construction jobs, remember G-E equipment is backed by engineering help in application, installation, and maintenance. For more information, contact your G-E Apparatus Sales representative. General Electric Company, Schenectady 5, New York. 664-38

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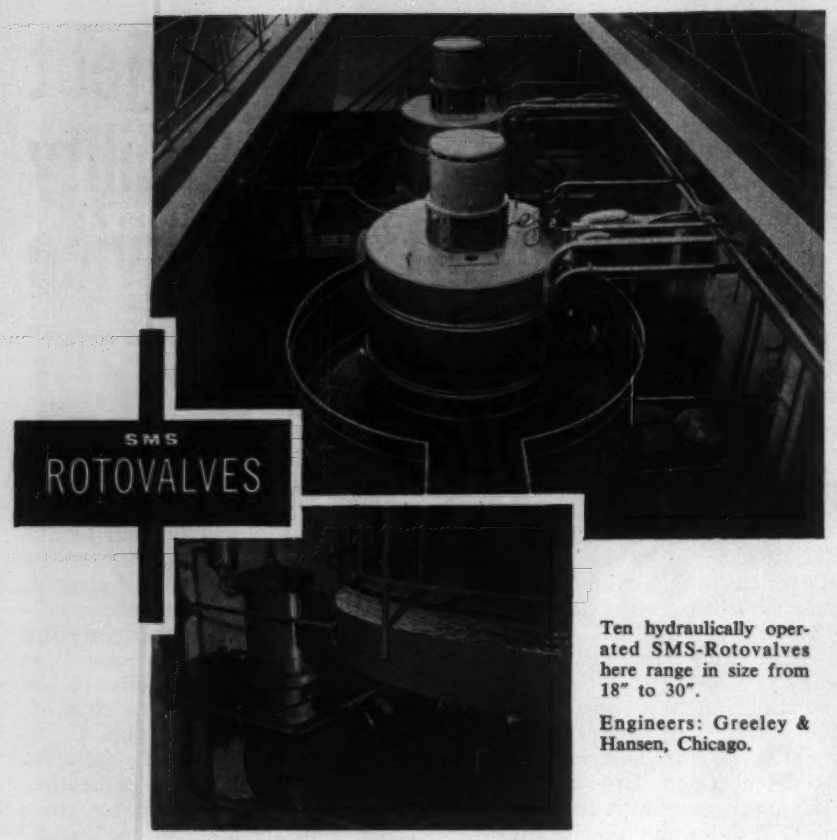
MINIMUM MAINTENANCE has been needed by this G-E 100-hp vertical pump motor over many years of service at the Boyer Bend automatic pumping station.

FACTORY ASSEMBLED to save installation time, this G-E Cabinetrol assembly controls five G-E synchronous motors at the Wilkins Slough pumping station.

HIGH DEPENDABILITY is typified by this G-E motor, one of three, slant-connected to pumps on riverbank, which have operated five years with no outage.



Ten hydraulically operated SMS-Rotovalves here range in size from 18" to 30".

Engineers: Greeley & Hansen, Chicago.

For the City of Niagara Falls, N. Y. . . .

SMS-ROTOVALVES SAFEGUARD HIGH AND LOW SERVICE PUMPS

SMS-Rotovalves were specified to safeguard service pumps in the City of Niagara Falls' new pumping station. Greater initial shut-off and positive control of closing time made them a logical choice to minimize water hammer in pump start-ups and shut-downs. Because SMS-Rotovalves have less pressure loss with a full line opening than other valve types, they save pumping power.

In addition to the SMS-Rotovalves, SMS Babbit-Seated Butterfly Valves meet the rugged, high service header requirements of fast, positive closure. At the adjacent filtration plant, 76 R-S Rubber-Seated Butterfly Valves were specified to give drop-tite closure, unusual economy of layout space and cut initial construction costs.

Whatever your application requirements, SMS has the experience and facilities to meet them. For additional information on our complete line of cone, ball and butterfly valve, see our local representative or write the S. Morgan Smith Company, York, Pennsylvania.

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Books

Concrete Manual Revised

CONCRETE MANUAL: A Manual for the Control of Concrete Construction—Sixth Edition. Compiled by the Staff of the Bureau of Reclamation. 491 pp. Obtainable from the Bureau of Reclamation, Denver 2, Colo., or the Superintendent of Documents, Washington 25, D. C. $2.50.

This widely used manual of concrete construction was last revised in 1949. This new edition takes cognizance of the important changes in concrete technology since that time. Included is fuller information concerning air-entrained concrete and pozzolans. Protection of new concrete against freezing by insulating the forms is more fully covered. Procedures for the design of concrete mixes have been rewritten to conform to current recommendations of the American Concrete Institute.

New Engineering Books

GLOSSARY OF SELECTED GEOLOGIC TERMS—With Special Reference to Their Use in Engineering—By Wm. Lee Stokes and David J. Varnes. Vol. 16 of Proceeding, Colorado Scientific Society. Published by the society, Box 688, Denver 11, Col. $4.75 paper; $3.50 cloth.

AMERICAN PLANNING AND CIVIC ANNUAL: 1954—American Planning and Civic Association, 901 Union Trust Bldg., Washington 5, D. C. $3.00

WOOD HANDBOOK—Basic Information on Wood and Material of Construction, with Data for its Use in Design and Specifications—1955 edition. Compiled by the Forest Products Laboratory, U. S. Dept. of Commerce. For sale by the Superintendent of Documents, Washington 25, D. C. $2.00

STEEL STRUCTURES PAINTING MANUAL: VOLUME 2, Systems and specifications—Edited by Joseph Bigos. 292 pp. Steel Structures Painting Council, 4400 Fifth Ave., Pittsburgh 13, Pa. $6.00. When purchased with Vol. 1, Good Painting Practice, the price for the two Volumes is $10.00

PRINCIPALS OF INDUSTRIAL WASTE TREATMENT—By C. Fred Gurnham. 399 pp. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. $9.50

DESIGN OF PRESTRESSED CONCRETE STRUCTURES—By T. Y. Lin. 456 pp. John Wiley & Sons, 440 Fourth Avenue, New York 16, N. Y. $11.50

I Built a Bridge and Other Poems—By David B. Steinman, 38 pp. The Davidson Press, 277 East 45th St., New York 17, N. Y. $2.00

Land Uses in American Cities—By Harland Bartholomew. 196 pp. Harvard University Press, Cambridge 38, Mass. $6.50

Building Planning and Design Standards—By Harold R. Sleeper. 331 pp. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. $12.00

Trane Air Conditioning Manual—1955 Revision. Compiled by the Trane Company, La Crosse, Wisconsin. 380 pp. $5.00

Reports and Pamphlets

The Cement Industry in Europe—Compiled by the Organization for European Economic Co-operation, Publications office, 2000 P Street, Washington 6, D. C. $1.00.

Education for the Professions—U. S. Department of Health, Education, and Welfare. For sale by the Superintendent to Documents, Washington 25, D. C. Price $1.75 paper, $2.75 buckram.

Conference Proceedings: Professional Development—The Responsibility of Industry and the Engineer, National Society of Professional Engineers, 1121 15th St., Washington 5, D. C. $4.00 non-members, $2.00 members.

Distribution of Lateral Forces in Small Buildings—Second Edition. Briggs Publishing Co. Post office box 351 Glendale 5, Calif. $3.50.

Plane Coordinate Intersection Tables, U. S. Coast and Geodetic Survey—Special Publications No. 332, Indiana ($0.50); No. 333, New Jersey ($0.25); No. 335, Texas ($1.75). Superintendent of Documents, Washington 25, D. C.

Design of a Modern Highway Bridge—By Odd Albert, Polytechnic Institute of Brooklyn, Brooklyn, N. Y. $1.50, limited edition.

Shopper Attitudes—Special Report 11-A of the Highway Research Board, issued as a supplement to special Report 11 Parking as a Factor in Business. Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $2.25.

Comparative County Highway Administration—A study of Steuben County, Indiana; Branch County, Michigan; and Williams County, Ohio. Joint Highway Research Project, Purdue University, Lafayette, Ind.

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non-magnetic steel for the chemical, oil and packing industries . . . for ANY installation where high resistance to heat, acids, chemicals, and corrosion is needed.

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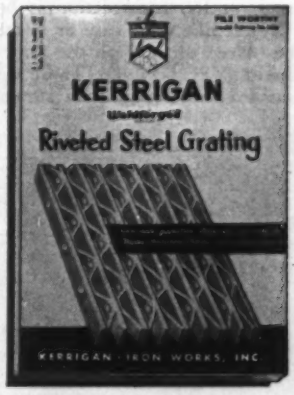
In both size and type, there is a Kerrigan Weldforged grating for every need. Let our new catalogs prove it to you. Send for the one you think best answers your need (or ask for ALL FOUR if you wish). We will also be glad to send you a desk-size grating sample. Write Kerrigan Iron Works, Inc., General Sales Office, 274 Madison Ave., New York City.



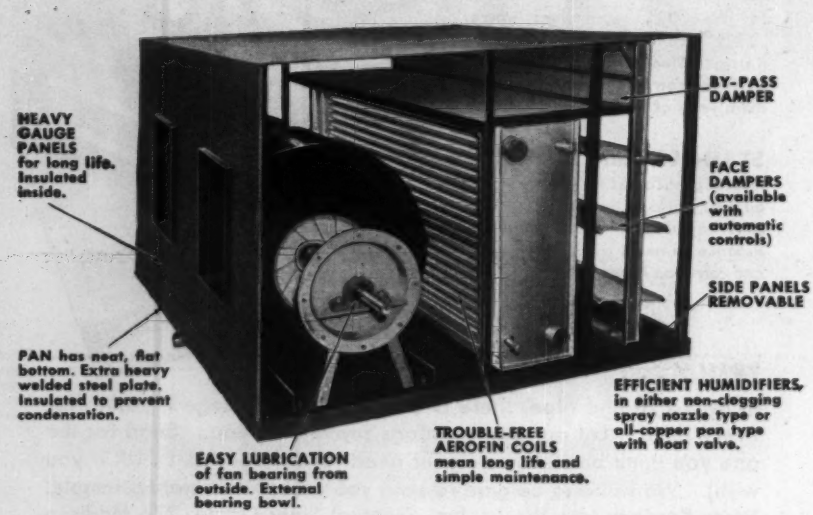
RIVETED STEEL
where it is desired to match existing grating.

ALUMINUM
spark-proof for those whose need is strength AND lightness. Extra safe and strong. Allowable fiber stress 15,000 psi. Modulus of elasticity 10,000,000 psi.

KERRIGAN GRATING
CUSTOM-MADE FOR YOUR JOB AND SAFE—IT'S

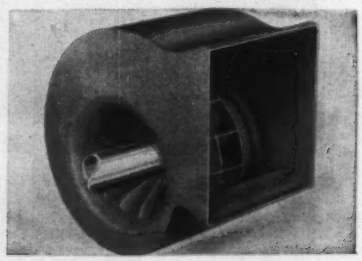
"Buffalo"

AIR CONDITIONING CABINETS ARE BUILT TO STAY SOLD!


HEAVY GAUGE PANELS for long life. Insulated inside.
BY-PASS DAMPER
FACE DAMPERS (available with automatic controls)
SIDE PANELS REMOVABLE
PAN has neat, flat bottom. Extra heavy welded steel plate. Insulated to prevent condensation.
EFFICIENT HUMIDIFIERS, in either non-clogging spray nozzle type or all-copper pan type with float valve.
TROUBLE-FREE AEROFIN COILS mean long life and simple maintenance.
EASY LUBRICATION of fan bearing from outside. External bearing bowl.

The above view of a "Buffalo" PC Cabinet (with side panels removed) shows why these units give *lasting satisfaction on the job.* It's part of what we call the "Buffalo" "Q" Factor*. From filter box to outlet, construction is both heavy-duty and convenient for maintenance. You'll like their ease of installation, too — this horizontal PC Cabinet can be placed directly on the floor or suspended. And where space is short, use "Buffalo" VPC Cabinets. These vertical models are in three demountable sections for moving in thru standard building openings. All models available with air washer sections, too, if desired. Capacities from 875 to 22,000 cfm. *Bulletin 3703A* gives full details. Write for your copy!

**The "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.*



STABLE, EFFICIENT, QUIET DELIVERY, with "Buffalo" mixed-flow fans — much more efficient than forward curve wheels and can be operated at higher pressures and speeds at lower noise level.

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VEHICLE OPERATION AS AFFECTED BY TRAFFIC CONTROL AND HIGHWAY TYPE —Bulletin 107, Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $0.90.

CONTROL OF HIGHWAY ACCESS—A Summary of State Legislation With 1955 Legislative Enactments. National Highway Users Conference, National Press Building, Washington 4, D. C.

STANDARDS FOR METHODS AND RECORDS OF HYDROLOGIC MEASUREMENTS—Flood Control Series No. 6 United Nations, New York, N. Y. $0.80.

MULTIPLE-PURPOSE RIVER BASIN DEVELOPMENTS: Part 1, Manual of River Basin Planning. Flood Control Series No. 7, United Nations, New York, N. Y. $0.80.

WEATHER MODIFICATION OPERATION IN CALIFORNIA—Bulletin No. 16, California State Water Resources Board, Public Works Bldg., Sacramento 5, Calif.

Miscellaneous Notes

• **The Division of School Buildings and Grounds** of the New York State Department of Education has issued new editions of two pamphlets. No. 1, Designing the School Plant as a Community Center, and No. 7, Planning the Indoor Physical Education Facilities. Copies can be obtained from the department's office, Albany 1, N. Y.

• **A new survey of salaries** in the civil engineering field has been issued by the American Society of Civil Engineers as Paper No. 761. It is a follow-up on a similar study made in 1953, and shows continuing increases in salaries in all professional grades, with proportionately greater increases for those in higher grades. Copies may be obtained from the society at 33 West 39th St. for $0.50.

• **New Guidance Material**—Two new pamphlets of interest to engineers concerned with guidance work have just been issued. One was prepared by the Committee on Cooperative Relations with the Universities of the American Railway Engineering Association. It is entitled "The Railroad Field—A Challenge and Opportunity for Young Engineers." High-school counselors can obtain individual copies without charge from AREA headquarters, 59 East Van Buren St., Chicago 5, Ill.

The second is "Opportunities in the Bureau of Public Roads for Young Engineers." Copies can be obtained from the Supt. of Documents, Washington 25, D. C. $0.25.

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Contractor: Fleming Company, 1717 Sansom Street, Philadelphia 3, Pa.

"VMP MOBILWALLS helped me meet a tight construction schedule"

Prompt delivery counts. This compliment from Charles J. Fleming, President of the Fleming Company, Philadelphia building construction firm, expresses the satisfaction that contractors feel when they deal with VMP. They can depend on fast deliveries. VMP MOBILWALLS always fit. No time is lost in erection with local VMP crews on the job.

VMP's metal movable MOBILWALLS slash installation time, keep that new look for years. Contractors everywhere are getting the word about the businesslike spirit behind VMP's erection and service crews. And warehouses have big stocks of metal MOBILWALLS available for immediate delivery.

Also, VMP works closely with the contractor . . . bidding with good sharp prices . . . giving expert attention to new and remodeling projects. Get the facts about VMP; write Dept. **ENR-12** for VMP MOBILWALL catalog showing the variety of partitions available.

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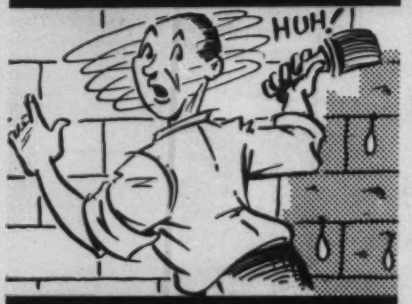

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BEFORE YOUR MASONRY *WEEPS*..

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"EASY ONE COAT"

TO KEEP IT CLEAN AND DRY

If your below-grade masonry is inclined to be damp, paint it *now* . . . don't wait for water seepage and freezing to bring on cracks and crumbling!

One coat is all you need! A quick, positive method of beautifying and keeping masonry dry and clean. And it's backed by TRUSCON, the world's best known name in waterproofing materials.

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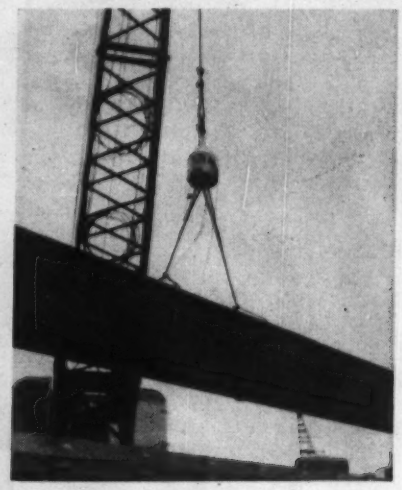
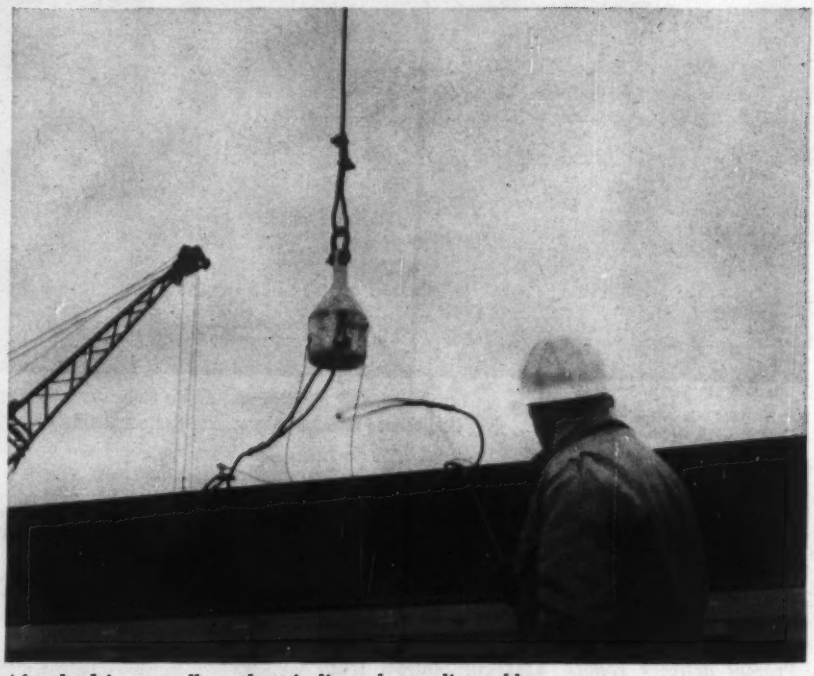


After retriever lines are clipped on, girder is hoisted.



After load is set, pull on the trip line releases sling cables.

Trip Shackle Speeds Hoisting

With a new safety trip shackle adaptable to standard boom rigs, workmen can release rope or wire slung loads from a safe distance. The shackles will handle up to 100 tons, and are safe, since they will not release sling cables under tension.

The quick release device operates on the principle of a standard bolt shackle: the bolt supports the cable or rope load slings, and the U of the shackle, containing a tripping mechanism, is attached to the hoisting line. To release the sling cables, an ejector triggered by a trip line throws the bolt from the shackle. A heavy alloy steel casing on the unit provides ruggedness and strength, protects the working parts and acts as ballast for the running gear.

Remote tripping can eliminate a common construction hazard in girder setting, since riggers don't have to tightrope out to release the sling after toeing in the beam. During high steel setting, the end of the trip line is clipped to the end of the girder to put it within reach of the rigger at the toeing point. The trip line clipped to the girder end also acts as a tag line,

Inserting bolt in trip shackle.

if needed. The manufacturer claims that a ball bearing swivel device in the shackle eliminates the need for a tag line in many jobs.

The safety trip shackle pictured here is a six-ton unit in use on a job by a Cleveland contractor. The ultimate design load of the six-ton unit is 18 tons, and it weighs 325 lb complete. Other projected models with working capacities to 100 tons have proportionately greater weight and design maxima. Prices vary according to model and size, but will be in the $400 to $1,000 range.

The manufacturer of the Mighty Ben shackle plans to use the quick release design principle in other industrial hitches requiring quick action, particularly where remote operation provides a practical safety measure. BENNET, ERVIN, NICKOLAS, INC., 1417 ST. CLAIR AVE., CLEVELAND, OHIO.

Dump Trailers Haul 30 Cu Yd Payloads

For areas where highway laws permit medium to high gross weight limits and allow credit for one or more sets of tandem axles, Hercules-Galion is now producing a new series of trailer dumps and four-wheel trailers with capacities to 30 cu yd. All units have front mounted telescopic hoists with lifting capacities up to 35 tons.

The trailer bodies are of high strength alloy steel with an understructure of 4 in. channel cross members welded to longtitudinal 6 in. I-beams. Standard equipment includes 7 in. air brakes, 10:00x20 tires, landing gear, ICC lights and directional signals.

The new line includes single and tandem axle trailer dumps from 17 to 24 ft long and 17-ft full trailers. HERCULES GALION PRODUCTS, INC., GALION, OHIO.

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Just twist—unscrew; that's all you do!

Here's the answer to maximum versatility in powder-actuated tools—TWO TOOLS IN ONE, with both ¼" and ⅜" barrels, interchangeable on the job. Operator carries with him the tool, extra barrel, fasteners and charges . . . sets ¼" and ⅜" studs *with the same tool* merely by switching barrels.

Changing barrels is simplicity itself . . . just release with a wrench, then a twist of the wrist takes out one barrel and puts in the other. Barrel not much bigger than a fountain pen.

This is the time-proved, job-proved RAMSET® JOBMASTER with this new added convenience. Still FIRST in powder-actuated fastening—imitated but never equaled.

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CUTS WELDING TIME ON RIGID FRAMES

WELDING time has been cut from 90 to 12 hours per frame by using semi-automatic welding.

In addition, an estimated 300 hours have been eliminated for handling and back-chipping that would have been required with conventional hand welding.

Each of 5 rigid frames is made of 2 tapered all-welded column-knee-rafter sections tied together in the field with I-beams. The column-knee-rafter sections are made from 27-WF-145 beams cut on a taper, turned and welded.

Welding is done in two passes. No edge preparation is necessary. Welding speed is 22 inches per minute.

Architect for Elyria High School Project: Outcalt-Guenther & Associates. Consulting Engineers: Barber & Magee, Cleveland. Contractor: Roth Brothers, Norwalk, Ohio. Fabricator: Kilroy Structural Steel Co., Cleveland, Ohio.

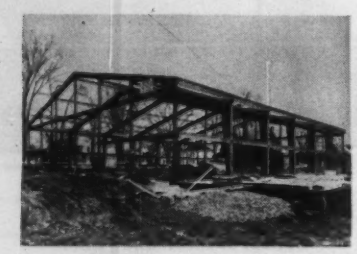

Fig. 1. Steel framework, *120' x 104', for high school gymnasium uses welded rigid frames.*

Fig. 2. *Welding column-knee-rafter section with Manual Lincolnweld, semi-automatic welding in granular flux.*

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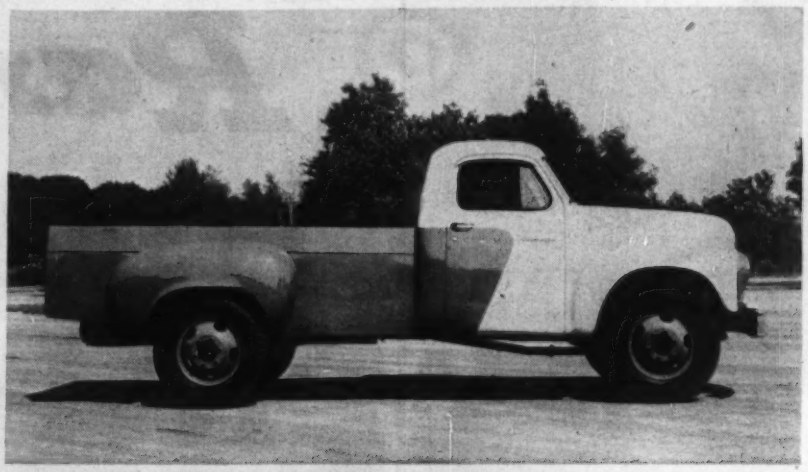


Studebaker Hikes '56 Truck Ratings

Studebaker has beefed up its line of trucks for 1956, and has included a number of previously optional items as standard equipment. There are six basic models in the new "Transtar" series, ranging from a ½-ton light-duty pickup to 2-ton heavier-duty trucks.

The manufacturer claims the pick ups in the line have the widest clear floor space in the industry. The pick up bodies retain the all-steel, double-shell construction that is unique to the Studebaker line. All light-duty trucks have increased payload capacity, wider rear axles, and two stage springs as standard equipment. Wheelbases of 112, 122, and 121 in. are available with gross vehicle weights ranging from 4,800 lb. in the ½-ton models to 9,600 lb in the one-ton line. For all models a choice of four power-plants is offered; a 92 hp in-line economy engine; 140 and 160 hp, 224 cu in. V-8's; and a heavy duty 156 hp 259.2 cu in. V-8.

The heavier-duty line, ranging in gross weight from 14,000 to 16,000 lb, includes 131, 155, and 171-in. wheelbase chassis. Both the 1½ and 2-ton models have 156 hp engines, and for the 2-ton only, a more powerful 175 hp version is offered as an option. For the first time, Studebaker is offering an electric shift with a two speed dual-purpose axle on the 2-ton series. With the optional five speed direct drive transmission, these trucks have 10 forward and two reverse speeds. In the 1½ ton units, the previously optional four speed syncromesh transmission is now standard equipment, with a five speed direct drive transmission optional.

The entire Transtar series of Studebaker trucks is available in six solid colors resembling the colors currently used in passenger cars. Pick-up truck buyers have an additional choice of three two-tone paint jobs. STUDEBAKER-PACKARD CORP., SOUTH BEND, IND.

Publications

Wood school construction—A 24-page booklet illustrates the use of wood in school construction with numerous photo case histories and a point-by-point analysis of economy, safety, durability, appearance, planning flexibility, insulation value, maintenance factors, and modern structural design developments. National Lumber Manufacturers Assn., 1319 Eighteenth St., N. W., Washington 6, D. C.

Aluminum electrical cable—The use of insulated aluminum cable for residential service drops is outlined in a 22-page illustrated brochure discussing costs, construction practices, bimetallic joints and other factors pertinent to E. C. aluminum use. Kaiser Aluminum & Chemical Corp. Industrial Service Div.-PR 255, 1924 Broadway, Oakland, Calif.

• **Pipe lining**—T-lock Amer-Plate is described in a new 12-page booklet. The product is a lining made specifically for concrete pipe and structures to provide a continuous plastic lining which will resist hydrogen sulfide and other sewer gases, acids, alkalis and salts. It is made from high polymer vinyl chloride resins molded under high temperature and pressure to form a dense and impervious liner with projecting tee-shaped ribs. Once cast into place it becomes an integral part of the structure.

The booklet describes the general, physical and chemical properties of the lining. General installation techniques are discussed as is the use of Tee-Lock Amer-Plate for structures and for cast-in place monolithic pipe. Amercoat Corp, 4809 Firestone Blvd, South Gate, Calif.

• **Hose assemblies**—A 24-page catalog of industrial hose assemblies, couplings, stems, swivels and accessories contains descriptions and specifications along with engineering data. The hose assemblies described are available in any length, complete with attached couplings, in hose sizes ranging from ⅛ to 2 in. ID. The hose assemblies fall into two basic groups. Assemblies with "permanent" couplings and those with "re-usable" couplings. The first is a unit which must be fabricated with special dies and presses while the "re-usable" coupling may be attached to the hose in the field without the use of special equipment. Catalog No. 55. J. N. Fauver Co, Inc, 51 West Hancock, Detroit 1, Mich.

FOR REMOTE CONTROL JOBS on a great variety of CONSTRUCTION EQUIPMENT

TRU-LAY *Flexible* PUSH-PULLS

are Dependable and Accurate even under the most adverse conditions. They perform effectively under extremes of Heat or Cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls means the virtual Elimination of Maintenance.

Widely Used on Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on Tractors and their accessories, Power Shovels, Winches, Road Graders, Road Oilers, Dump Trucks, Snow Plows, Engine-driven Pumps, Rock Crushers, etc.

On Construction Equipment these dependable Push-Pulls are used for the remote control of Hydraulic and Air Valves, Brakes, Clutches, Transmissions, Throttles, Chokes, Governors, Power Take-Offs, and on many other applications.

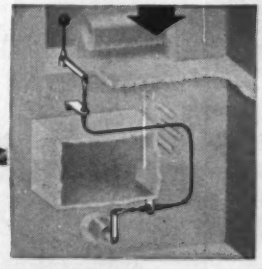
TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances up to 150 feet or more.

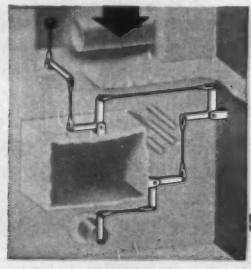
For full details, write for DATA FILE.

***Advantages** of Tru-Lay Push-Pull flexibility and simplicity are pictured below*

TRU-LAY PUSH-PULL
Simple • One Moving Part
Life-Time Service • Life-Time Accuracy • Low over-all Cost
Noiseless

MECHANICAL LINKAGES
Complex • Many Parts
Many Points of Wear • Increasing Back-Lash • Loss of Accuracy • Vibration Rattles





"Solid as a rod but *Flexible* as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions as shown in the picture at the left . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, Accurate, Adaptable, Rugged . . . they are the ideal remote controls for Construction Equipment.

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WHITE GIVES YOU
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. . . yet costs less than other quality engineers' transits

LIKE every White quality-built instrument, these engineers' transits give you greater dollar-for-dollar value than any other comparable unit.

For example: White uses a recently-developed Swiss Dividing Engine to cut graduations into solid silver. This insures super-precision from the beginning, safeguards it through more years of hard field usage.

In addition, White engineers' transits give you internal focusing, covered leveling screws, and coated optics. These and a host of other design and operating features combine to give you a transit unsurpassed for ease, speed, accuracy, economy and long-lived dependability. Write for Bulletin 155 and the name of your nearest dealer. DAVID WHITE COMPANY, 317 W. Court Street, Milwaukee 12, Wisconsin.

White Coated Optics give you an image like this...

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Even at long distances under adverse weather conditions, you get a clear, sharp image — without halation.

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We offer expert REPAIR SERVICE on all makes, all types of instruments.

Obituaries

Frank Woodbury Jones, 69, partner in the consulting firm of Havens & Emerson died Nov. 17. Though associated prominently with consulting engineering since 1940, he was perhaps best known as a sanitary chemist and long-time operator of sewage works. It was he, in fact, who created in 1941 the informal Quarter Century Operators' Club of veterans of plant operation within the Federation of Sewage & Industrial Wastes Associations. He was the 1952 winner of the federation's Charles Alvin Emerson Medal, awarded for service to the organization in honor of another notable partner in Havens & Emerson who passed away earlier this year.

W. S. Tanner, 60, member of the engineering firm of Butler & Tanner, Sacramento, Calif., died Nov. 10. A native of Texas, he served for 16 years as an engineer with the city of Dallas, before moving to Los Angeles in 1940. In 1949 he went to North Sacramento, Calif., as city engineer, a post he held for three years. Tanner was a civil engineering graduate of Southern Methodist University.

G. W. Buchholz, 74, general secretary of the Associated General Contractors of America from 1919 to 1922, died Nov. 15 at Southern Pines, N. C. Buchholz, a native of Pittstown, Pa., obtained his civil engineering degree from Columbia University in 1901. He headed his own construction firm at Asheville, N. C., before retiring to Southern Pines in 1952.

Col. Karl B. Schilling, 60, retired Army Engineer, died Nov. 14 in Augusta, Ga. A graduate of the U. S. Military Academy in 1918, he participated in the Normandy campaign of World War II and later commanded engineer troops in building Air Force facilities in Europe. After the war, he became chief of the construction operations division in the construction directorate of the Office of The Chief of Engineers in Washington.

Thomas A. Jordan, 73, assistant division engineer of the American Bridge Division, U. S. Steel Corp., Chicago, until retirement in October 1946, died Oct. 21 in that city. He was a graduate of Michigan State University with a B. S. in civil engineering. Jordan joined the American Bridge Co. in 1910 and served in various capacities for 35 years until his retirement.

Wire Rope at Work — This is the skeleton of The Parkade, located on the Plaza, Camden, N. J. When finished, The Parkade will be an air-conditioned building with the wings of each floor reserved for offices. The center portion of all floors and the entire roof will be devoted to parking facilities, thus helping to alleviate a problem that has become acute in this part of the city. The Parkade is owned by the Nedmac Corporation; Terminal Construction Corporation is the builder.

The work of construction called for erecting 3500 tons of fabricated steel on a very tight schedule. One 60-ton and three 50-ton cranes were employed, each equipped with a 100-ft boom and Bethlehem wire rope. On any job of this nature Bethlehem rope is a tireless servant, willing and able. It proved so here. Bethlehem Purple Strand was used on all the lifts, and the hefty structural members were swung into place like matchsticks.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

CONSTRUCTION • MINING • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲ NEW HAMPSHIRE—State Dpt. P. Wks. & Hys., Concord,
Landers & Griffin, Inc., and **Morrison-Knudsen Co., Inc.,** 800 Islington St., Portsmouth, N. H., CA $1,748,317. road mix hy., 2.1 mi. 4 lanes divided and 5 bridges, Spaulding Turnpike, Dover. Bids Nov. 3, awarded Nov. 15. CD 11/10, under LB.

▲ **Commonwealth of Mass., Port of Boston Comn.,** c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass., rejected bids Sept. 22, W-702, Contr. 1, Commonwealth Pier No. 5, South Boston, BOSTON, MASS., LB, $1,463,000. CD 9/27, under LB.

BUILDINGS—LB & CA

▲ **Davison Constr. Co., Inc.,** 1036A Elm St., Manchester, N. H., CA $1,904,500, est. $1,900,000. Senior HIGH SCHOOL, off Summit Ave., Proj. No. NH-54-C-2AA, PORTSMOUTH, N. H. City, Chairman Joint Bldg. Comm., City Hall, Portsmouth, N. H. Bids Nov. 10. CD 11/17, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† N. Y., **Niagara Falls**—BLDGS. and APPROACH LIGHTING—BA 12/15—U. S. Eng., 111 E. 16 St., New York, Zone 3, misc. bldgs., approach lighting, Package No. 1, Niagara Falls Air Force Base. $500,000-$1,000,000. Brown, Guenther & Booss, 1860 Broadway, New York, archts. CD 11/1, under LB.

▲† New York—AAA FACILITIES—BA 12/20—U. S. Eng., 111 E. 16 St., New York, Zone 3, AAA facilities, Brookhaven. $1,000,000-$3,000,000. James P. O'Donnell, 39 Broad St., New York, Zone 4, engr. CD 11/14.

BUILDINGS—BA

▲ N. Y., New York—SCHOOL—BA 12/19—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general constr. P. S. 41, W. 11 St. Avenue of the Americas and Greenwich Ave., Manhattan Boro, Plans deposit $20. CD 1/20.

▲ N. Y., New York—SCHOOL—BA 12/20—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general constr., Junior High School 101, Lafayette, Huntington and Brinsmade Aves., Bronx Boro. Plans deposit $30. CD 1/20.

▲ N. Y., Pomona—WELFARE HOME—BA 12/22—Bd. Supervs. Rockland Co. County Court House, New City, county welfare home, 120-acre tract adjoining Rockland Co. TB Sanitorium. $1,000,000. Lorimer & Rose, 254 W. 54 St., New York, Zone 19, archts.

BUILDINGS—SLC

▲ Pa., Upper Darby—SCHOOL—R. C. Archdiocese of Phila., 310 N. 19 St., Phila., soon lets contract Father Bonner High School for Boys. $2,500,000. Stickle & Assoc., 125 City Line, Bala Cynwyd, archts. CD 11/2.

HEAVY CONSTRUCTION—LB & CA

▲† **Jandous Electric Constr. Corp.** & **Lord Electric Co., Inc.,** 210 E. 40 St., New York 17, N. Y. CA $2,196,000 install signal equip. for Third Ave. line, 149 St. to 219 St., Bronx Boro, Contr. S 68, NEW YORK. New York Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Sept. 23. CD 9/27, under LB.

▲† **Lehigh Structural Steel Co.,** 17 Battery Pl., New York 4, N. Y., CA $1,004,190, furnish, fabricate, erect structural steel for Kent Avenue Power Plant, Contr. P-127, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Sept. 16. CD 9/21.

Lehigh Structural Steel Co., 17 Battery Pl., New York 4, N. Y., CA $908,200 (2 bidders), Contr. P-148, furnish, fabricate, erect structural steel for 74 Street Power Plant, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Aug. 19. CD 9/12, under LB.

▲ **C. J. Langenfelder & Son,** 8427 Pulaski Hy., Baltimore, Md., LB $5,137,616, Contract PT-101, south approach expressway 2.803 mi. incl. 8 bridges, 3 concrete box culverts south of Baltimore; LB $3,737,717, Contract T-120, north approach expressway 0.62 mi. incl. 8 overpasses and underpasses with connecting ramps, Baltimore, MARYLAND. State Rd. Comn., 108 E. Lexington St., Baltimore 2, Md. Bids Nov. 17, CD 10/25;
Joseph F. Hughes & Co., 5 E. Franklin St., Baltimore, Md., LB, $2,360,736. Contract PT-111 and PT-113, combination Fairfield Ventilation Bldg. and Canton Ventilation Bldg. (Maryland).

BUILDINGS—LB & CA

▲ **Eileen Gardens Homes,** c/o Walter Daub, 26 Nassau Blvd., Garden City, N. Y. Owner Builds. $2,700,000. 160 HOUSES on tract on Hayparth Rd. east of Plainview Rd., BETHPAGE, N. Y.

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. LB $2,434,000 (5 bidders) general constr. Junior HIGH SCHOOL 44, W. 76 and W. 77 Sts. and Columbus Ave., Manhattan Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr. 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 15, CD 10/19;
Goodrich Electric Installation Co., Inc., 381 4th Ave., New York 16, N. Y., LB $349,580 (6 bidders) electric (New York, N. Y.)

▲ **Depot Constr. Corp.,** 42-15 Crescent St., Long Island City, N. Y. LB $8,300,000. general contract MEDICAL-SURGICAL BLDG., DINING and KITCHEN BLDG. and connecting corridors, Creedmoor State Hospital, QUEENS VILLAGE, N. Y. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Nov. 17. CD 10/4;
Raisler Corp., 129 Amsterdam Ave., New York 23, N. Y. LB $752,800. heating work. (Queens Village, N. Y.);
Joseph F. Egan, 3013 Grand Concourse, New York 58, N. Y. LB $735,000. plumbing work (Queens Village, N. Y.);
Heckler Electric Co., 44 Schenectady Ave., Brooklyn, N. Y. LB $932,200. electrical work (Queens Village, N. Y.).

▲ **William L. Blanchard & Co.,** 45 Poiner St., Newark, N. J., CA, $1,500,000, 7 story OFFICE, Broad and Bridge Sts. NEWARK, N. J. Mutual Benefit Life Insurance Co., 300 Broadway, Newark, N. J. Blue Cross Plan, lessee. CD 3/17.

▲ **Winson Woods Estates,** c/o Walter H. Kremer, 1300 Plaza Rd., Fairlawn, N. J. Owner Builds. $1,000,000. 33 HOUSES on tract at Woodcliff Ave. and Arcadia Rd., WOODCLIFF LAKE, N. J.

▲ **Allan Dale Homes, Inc.,** Att. Louis Bater, Woodstown, N. J. Separate Contracts. $2,500,000, 216-unit RESIDENTIAL DEVELOPMENT, Woodstown-Salem Rd., WOODSTOWN, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

▲ **Robert E. Lamb & Son,** 3429 W. Indiana St., Phila., Pa., CA Est. $3,500,000. 2 story FACTORY, 1 story WAREHOUSE, LITITZ, PA. Warner-Lambert Co., Lititz, Pa. A. M. Kinney Co., 2905 Vernon Pl., Cincinnati, O., engr.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
ENR	**Engineering News-Record**
CD	**Construction Daily**

For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲† **E. C. Ernst, Inc.,** 1622 14 St. N.W., Wash., D. C., LB, $2,021,044 electrical dist. sys. First Increment Expansion, U. S. Naval Base and Naval Air Station, NOY 88364, Spec. 45336, NORFOLK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Oct. 25. CD 10/3.

▲† **Agnew-Joseph Co.,** Ronceverte, W. Va., LB, $2,745,999 (1) Lot A plus Lot B, relocation of Baltimore & Ohio R. R. grading, appurtenant work, Section 2, Sutton Reservoir, Elk River, CIVENG-46-022-56-18, WEST VIRGINIA. U. S. Eng., 237 Fourth Ave. Huntington 19, W. Va. Bids Nov. 17. CD 10/25;
Nello L. Teer, Trust Bldg., Durham, N. C., LB $2,950,243, (2) Lot A plus Lot C. (West Virginia).

▲† **Belcher Oil Co.,** 1217 Biscayne Blvd., Miami, Fla., CA, $1,044,462. Pumping Station 3 and modifying Hurricane Gate Structure 3, Central and Southern Florida Flood Control Proj., ENG-08-123-56-9, FLORIDA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids About Sept. 14. CD 8/9.

▲† **Linwood Smith,** Lake Village, Ark., and **Kenyon Dredging Co.,** P. O. Box 607, Port Allen, La., LB, $1,551,111. floodway channel, east and west levees, drainage ditch, low-water weirs, erosion control structures and road relocation, Lower Auxiliary Channel, Item LAC-3 approx. 20 mi. southwest of Yazoo City, approx. 10 mi. northwest of Satartia, Yazoo Co., MISSISSIPPI, U. S. Eng., P. O. Box 60, Vicksburg, Miss. Bids Nov. 15. CD 10/12.

▲† **Blythe Constr. Co.,** Box 989 Charlotte, N. C. and Morrison-Knudsen Constr. Co., Box 6156, Sta. A, New Orleans, La. CA $3,482,838. runways, taxiways, aprons, for Alvin Callender Field, Belle Chasse, NEW ORLEANS, LA. Eighth Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans, La. CD 11/10, under LB.

BUILDINGS—LB & CA

▲ **Burman Properties, Inc.,** c/o Evan J. Conner, archt., 927 15 St. N. W., Wash., D. C. Owner Builds, $2,000,000. 15-store SHOPPING CENTER, 10-acre tract on Duke St., ALEXANDRIA, VA. CD 11/17.

▲ **Rust Eng. Co.,** Exchange Bldg., Birmingham, Ala., CA, Est. $3,000,000 design and construct new BLAST FURNACE, BIRMINGHAM, ALA. U. S. Pipe & Foundry Co., 3300 1 Ave. N., Birmingham, Ala. Awarded Nov. 15.

▲ **R. P. Farnsworth & Co., Inc.,** P. O. Box 850, New Orleans, La., LB, $1,739,000. 2 story, bsmnt., 130x234 ft. steel SUPREME COURT, NEW ORLEANS, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Bids Nov. 15. CD 10/14.

▲ **F. W. Owens Co.,** 119 N. Fifth St., Louisville, Ky. LB $2,822,000. (6 bidders) branch BANK, LOUISVILLE, KY. Federal Reserve Bank, 134 S. Fifth St., Louisville, Ky. Layton, Layton & Rodes, 1221 Locust St., St. Louis, Mo., engrs. Bids Nov. 18. CD 10/24.

MIDDLE WEST

BUILDINGS—BA

O., **Euclid**—SCHOOL—BA 12/15—Bd. Educ., 23131 Lake Shore Blvd., Zone 23, Wells Elementary School, Lloyd Rd., Lake Shore Blvd. $725,000. Plans deposit $50 general constr., $40 elec., $40 heating and plumbing. Fulton, Krinsky & DelaMotte, 6014 Euclid Ave., Cleveland, Zone 5, archts. CD 11/11.

HEAVY CONSTRUCTION—LB & CA

National Constr. Co., 23500 Lakeland Blvd., Cleveland 23, O., LB $839,081, est. $1,000,000 (8 bidders) constr. Highland Rd. water mains, CLEVELAND, O. City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall., Cleveland 14, O. Bids Nov. 4, CD 10/26;
Dravo Corp., Neville Island, Pittsburgh, Pa., LB $81,146, (2 bidders) pumping imprvs., Nottingham pumping station (Cleveland, O.).

▲ **Bates & Rogers Constr. Corp.,** 600 W. Jackson St., Chicago, Ill., CA, $3,044,746, railroad overpass in First and Keowee Sts. area, incl. street and sewer work, two overpasses on E. First St. and one on Monument Ave., Pitt and Cooper Sts., DAYTON, O. City, Herbert Starick, city mgr., City Hall, Dayton, O. Bids Nov. 3, awarded Nov. 9. CD 11/16, under LB.

▲ **ILLINOIS**—State Div. Hys., Dpt. P. Wks. & Bldgs., Centennial Bldg., Springfield,
Ill.—**Regenhardt Constr. Co.,** P. O. Box 440, Cape Girardeau, Mo., LB, $1,029,000. c. conc. 0.5 mi. Ill. 140 and paved ramps to U. S. 66 for grade separation, Madison Co.;
Ill.—**Grundstrom Co., Inc.,** 2001 Waukegan St., Glenview, Ill., LB, $87,673, landscaping F. A. 131 (Con-

gress St. Expressway) from Sacramento Blvd. to Morgan St. Chicago, Cook Co.;
Ill.—**Commercial Light Co.**, 841 W. Washington St., Chicago, Ill., LB, **$281,001.** hy. lighting F. A. 131 (Congress St. Expressway) from Sacramento Blvd. to Halsted St., Chicago, Cook Co. Bids Nov. 18. CD 11/14.

BUILDINGS—LB & CA

Meadowview Homes, Inc., 4354 N. Arlington Ave., Indianapolis, Ind., Owner Builds. **$800,000.** 50 HOMES, Meadowview Addn., INDIANAPOLIS, IND.

▲ **R. D. Robbins**, 109 E. Sycamore St., Kokomo, Ind., Owner Builds, **$1,000,000**, 100 HOMES, Forest Park Estate, KOKOMO, IND.

▲ **Karl H. Kettlehuo**, 70 B Lafayette Loan & Savings Bldg., Lafayette, Ind., CA, **$7,025,000** general contract completion of UNION HALL of MUSIC ANNEX, WEST LAFAYETTE, IND. Bd. Trustees, Purdue University, West Lafayette, Ind. Bids Nov. 16. CD 10/14.

▲ **Borg Warner (Byron Jackson Div.)**, 310 S. Michigan Ave., Chicago, Ill., **Combustion Eng. Co.**, 200 Madison Ave., New York, N. Y., **General Electric Co.**, River Rd., Schenectady, N. Y., **United Engineers & Constructors**, 1401 Arch St., Phila., Pa., **Babcock & Wilcox**, 161 E. 42 St., New York, N. Y., **Commonwealth Associates, Inc.**, 252 W. Cortland St., Jackson, Mich., CA, **$4,300,000.** POWER REACTOR TEST FACILITY at Delray Plant, DETROIT, MICH. Atomic Power Development Associates, Inc. (a combination of 32 electric companies) c/o Detroit Edison Co., 2000 2nd Ave., Detroit 26, Mich.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲† **Kan., Topeka**—HOSPITAL—BA 12/29—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., 3 story, part bsmnt., rein.-con. hospital, Forbes Air Force Base, ENG-56-36. $2,000,000. CD 11/11.

BUILDINGS—BA

▲ **Tex., San Antonio**—BANK, OFFICE, etc.—BA 12/13—National Bank of Commerce, Soledad and Travis Sts., 15 story, bsmnt., 266,000 sq. ft. bank and office, $4,000,000; 4 story, masonry auto parking garage for customers, $300,000. Atlee B. & Rob. M. Ayres, 342 W. Woodlawn St., San Antonio, and Kenneth Franzheim, 802 Lovett Blvd., Houston, archts. W. E. Simpson Co., 945 Milam Bldg., engr. CD 5/24.

HEAVY CONSTRUCTION—LB & CA

▲† **Schwope Brothers**, 6633 W. Commerce St., San Antonio, Tex., LB **$1,632,707**, airfield pavements, Naval Auxiliary Landing Field, NOY 89004, Spec. 47895, ALICE-ORANGE GROVE, TEX. Officer in Charge of Constr., Naval Air Advanced Training Command, Naval Air Station, Corpus Christi, Tex. Bids Nov. 15. CD 10/19.

Holland Page, Box 1181, Austin, Tex., CA **$937,086**, water distr. sys., AUSTIN, TEX. Travis-Williamson Co. Water Control & Imprvt. Dist. No. 1, Court House, Austin, Tex. Bids Nov. 4. CD 11/15, under LB.

▲ **Kansas City Bridge Co.**, 928 Broadway, Kansas City, Mo., CA, **$1,598,380**, est. over $2,000,000. Phase No. 2, Pelican Island Bridge Proj. to connect Galveston Island with Pelican Island, draw bridge spans, GALVESTON, TEX. City, City Hall, Galveston, Tex. Bids Nov. 4. CD 11/10, under LB.

BUILDINGS—LB & CA

▲ **Friendly Hills, Inc., H. and V. J. Rothschild**, 613 Guardian Bldg., St. Paul, Minn. Owner Builds. $7,000,000. 500 HOUSES near Hy. No. 49 and Hy. No. 100, Mendota Twp., ST. PAUL, MINN. G. Dimond & Assoc., 416 Endicott Bldg., St. Paul, Minn., archts.

▲ **Wickes Eng. & Constr. Co.**, 1441 Second Ave., Des Moines, Iowa, CA Total est. $6,892,000. substructure of POWER PLANT, CEDAR RAPIDS, IOWA. Central Iowa Power Co-operative, 219½ 3 Ave. S.W., Cedar Rapids, Iowa. Brown Eng. Co., 322 K. P. Bldg., Des Moines, Iowa, engrs, CD 9/15;
General Electric Co., 840 S. Canal St., Chicago 80, Ill., CA turbo-generator (Cedar Rapids, Iowa);
Fuel Economy Eng. Co., 508 New York Life Bldg., St. Paul 1, Minn., CA steam generator (Cedar Rapids, Iowa);
Foster-Wheeler, Dwight Bldg., Kansas City, Mo., CA condenser (Cedar Rapids, Iowa.)

▲ **Gilliox Constr. Co.**, Monett, Mo., LB, **$1,129,000**, est. $1,000,000. Contract 18, incl. 600 ft. concrete spillway, steel bridge earth dam, roadway, paving work at James River, SPRINGFIELD, MO. City, City Hall, Springfield, Mo. Bids Nov. 15. CD 11/10.

▲ **Linbeck Constr. Corp.**, Box 13007, Houston 19, Tex., CA, **$2,087,500.** Kashmere Gardens Junior High SCHOOL, HOUSTON, TEX. Houston Independent School Dist., 1300 Capitol St., Houston, Tex. Bids Nov. 10. CD 11/21, under LB.

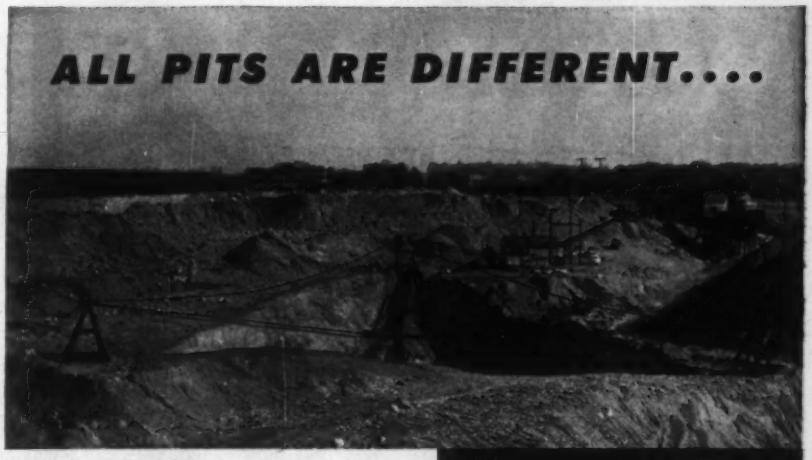
▲ **United Constr. Co.**, 851 Broadway, Denver, Colo. Separate Contracts, **$3,000,000.** 179 one story, bsmnt., brick RESIDENCES, bounded by Harlan St., W. 50 and W. 52 and Sheridan Blvd., DENVER, COLO.

▲ **Holly Builders, Inc.**, 132 S. Fifth St., Grand Junction, Colo., Owner Builds, **$1,000,000**, HOUSING, GRAND JUNCTION, COLO.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Wash., Spokane**—GAS DISTRIBUTION SYSTEM—BA About 12/15—Fish Service & Management Corp.,



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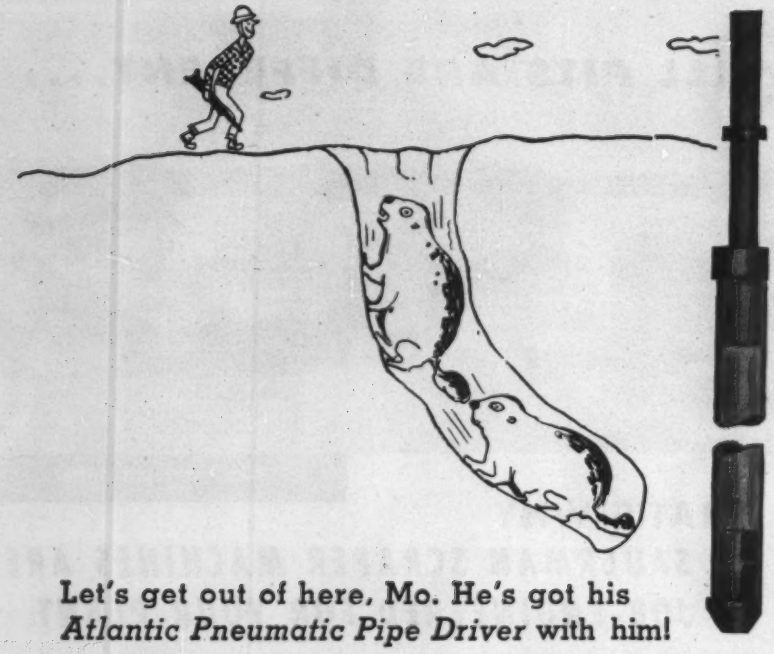

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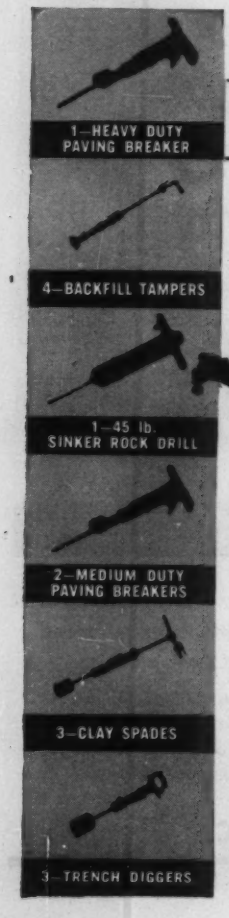

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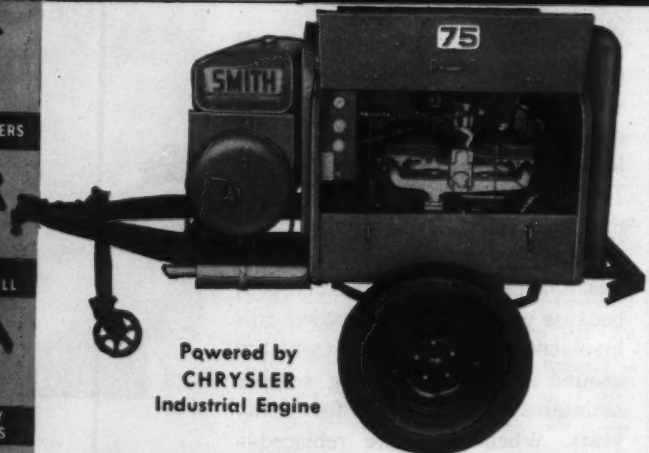

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engrs., A. M. & M. Bldg., Houston, Tex., natural gas distr. sys., in and near here, for Spokane Gas & Fuel Co., N. 25 Monroe St., Spokane, Wash. $6,000,000. Plans deposit $100. CD 6/25/54.

▲ **Washington**—Bids Early 1956—Grant County Public Utility District No. 2, P. O. Box 878, Ephrata, 8,800 ft. long, 100 ft. high concrete, earthfill Priest Rapids Dam with initial installation of eight 79,000 kv generating units on Columbia River. Arrangements for viewing site and pre-bidding information may be obtained from owner or engineers. Total est. $143,000,000. Harza Eng. Co., 400 W. Madison St., Chicago 6, Ill., engr. (Correction—cost). CD 11/3.

BUILDINGS—BA

▲ **Calif., Los Angeles**—SCHOOL—BA 12/14—Los Angeles Bd. Educ., 1425 S. San Pedro St. Watts Junior High School. $2,000,000. Wm. H. Harrison, 816 W. 5 St., archt. CD 11/6/53.

BUILDINGS—SLC

▲ **Wash., Vancouver**—SHOPPING CENTER—Joseph Cannelos, Realtor, 812 Washington St., soon lets contract first units of shopping center, Hazel Dell District. $1,000,000. Weaver & LaLonde, Vancouver, archts. CD 11/30/54.

BUILDINGS—LB & CA

J. C. Boespflug, 605 S. Lucas St., Los Angeles, Calif., LB, $846,000. 3 story, 51,532 ft., rein.-con. HOSPITAL addn., RIVERSIDE, CALIF. Riverside Community Hospital, Riverside, Calif. Bids Nov. 9. CD 10/12.

▲ **City**, City Hall, Santa Monica, Calif., rejected bids Oct. 11, CIVIC AUDITORIUM, SANTA MONICA, CALIF. LB $3,217,000. CD 10/14, under LB.

CANADA

BUILDINGS—BA

▲ **Ont., Cornwall**—SCHOOL—BA 12/14—Cornwall Collegiate & Vocational School Bd., G. H. Cottrell, secy., Collegiate & Vocational School addn., alterations, Sydney St. $1,160,000. Comber, Comber & Mack, 129 Sydney St., archts. CD 11/14.

▲ **Ont., Sarnia**—PLANT—BA 12/15—Dow Chemical Co. of Canada Ltd., 600 University Ave., Toronto, ethanolamine plant, $1,000,000. G. B. MacCoy, c/o owner, at Vidal St. S., Sarnia, engr. CD 4/18/52.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **Kaisers Engineers Div., of Henry J. Kaiser Co.**, 1924 Broadway, Oakland, Calif., U..S.A. CA $130,000,000. design, procurement and construction steel PLANT EXPANSION incl. addnl. coking facilities, coke ovens, by-product plant, sintering plant, blast furnace, addnl. open hearth furnaces, blooming mill, structural mill, continuous sheet bar mill, JAMSHEDPUR, INDIA. Tata Iron & Steel Co. Ltd., Jamshedpur, India.

Proposed Projects

WATER SUPPLY

▲ **Ark., Little Rock**—City, City Hall, voted bonds Nov. 8, water reservoir, dam, pump station, lines and expansion of filter plant on Big Maumelle River, 12 mi. west city $10,000,000. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., consult. engr. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., consult. engrs. on reservoir. CD 9/26.

▲ **Calif., La Mesa**—La Mesa, Lemon Grove, Spring Valley Irrigation Dist., 4769 Spring St., $5,230,000 bond election Jan. 24, W W Imprvs., La Mesa, Lemon Grove and Spring Valley. John S. Longwell, 405 14 St., Oakland, consult. engr. CD 4/4.

▲ **Ky., Louisville**—Louisville Water Co., 435 S. Third St., clarifier basins, Crescent Hill Plant. $1,500,000. Alvord Burdick & Howson, 20 N. Wacker St., Chicago, Ill., consult. engrs. B. E. Payne, owner's engr. Planned for Nov. 1957. CD 8/9.

▲ **Tex., Lubbock**—City, City Hall, voted bonds, dam and reservoir, $2,750,000; rehabilitation existing WW sys. $500,000; c. I. water mains, $4,074,000. CD 6/28.

SEWERS, WASTE DISPOSAL

▲ **Colo., Boulder**—City, City Hall, voted bonds Nov. 8, sewage treatment plant etc. $1,110,000. CD 11/11.

▲ **Iowa, Ottumwa**—City, City Hall, sewage plant $1,027,000. Henry Cook, city engr. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs.

▲ **Mo., St. Joseph**—City, City Hall, defeated $2,500,000 bonds Nov. 8, sewers. CD 8/18.

▲ **Mo., St. Louis County**—Metropolitan St. Louis Sewer Dist., William Q. Kehr, exec. dir., 506 Olive St., St. Louis, Zone 1, constr. 6 mi. trunk sewer sanitary sewer ranging from 18- to 24-in. up to 5 ft. in Maline Creek area in northwestern part of county. $1,250,000. CD 9/15.

▲ **N. Y. Mineola**—County Executive, Nassau County Old County Court House, sewage facilities for Sewage Collection Dist. No. 2-RU in area comprising Roosevelt and Uniondale, $3,000,000. Nussbaumer, Clarke & Velzey, 500 Fifth Ave., New York, Zone 36, consult. engrs. CD 10/26.

▲ **O., Zanesville**—City, defeated $2,000,000 bonds Nov. 8, sewage disposal plant, $4,500,000. CD 7/19.

▲ **Pa., Kenilworth**—Supervs. North Coventry Twp., Kenilworth, sewage disposal sys. $1,000,000. Gilbert Assocs.,

Inc., 607 Washington St., Reading, and George F. Shaner, Pottstown, consult. engrs.

▲ **Tex., Lubbock**—City, City Hall, voted bonds, sanitary sewer mains, $1,460,000; rehabilitation sanitary sewerage sys. $400,000; storm sewers, $1,500,000. CD 10/11.

▲ **Wis., Milwaukee**—Metropolitan Sewerage Comn. of Milwaukee Co., Jones Island, main sanitary sewer constr. program for 1956. $2,500,000. R. D. Leary, c/o owner, ch. engr.

BRIDGES

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock,
Columbia Co.—6 concrete, steel bridges to timber structures U. S. Hy. 79, Magnolia-Emerson, $175,000.
Crittenden Co.—widening all bridges to Mississippi River Bridge, West Memphis-east $1,000,000.
Izard Co.—2 concrete bridges, State Hy. 56, Brockwell-Ash Flat, $16,100. CD 12/24/43.

STREETS AND ROADS

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock,
Bradley Co.—blacktop 8.13 mi. Hilo-Hermitage $41,400.
Columbia Co.—wid'n., resurf. inside city limits 2.34 mi. U. S. Hy. 79, Magnolia, $49,400.
Dallas Co.—reroute clearing for relocation 13.71 mi. State Hy. 8, Princeton-southeast, $33,600.
Johnson Co.—widening, resur. city streets 3,070 ft. U. S. Hy. 64, Clarksville, $117,000.
Pulaski Co.—wid'n., strengthening 8 mi. U. S. Hy. 65, Little Rock-Wrightsville, $240,000.
relocation 4 lanes right of way, grading, drainage 2-lanes pavement 10 mi. U. S. Hy. 67, North Little Rock-Jacksonville, $1,750,000.

▲ **ARKANSAS**—State Hy. Comn., Little Rock,
Mississippi and Crittenden Counties—49.9 mi. new Route U. S. Hy. 61-63, West Memphis to Missouri Border. Est $23,000,000. Sverdrup & Parcel Inc., Syndicate Trust Bldg., St. Louis, Mo., consult. engr. CD 3/15.

▲ **Calif., San Francisco**—City and San Francisco Co. P. Utilities Comn., City Hall, defeated bonds Nov. 8, off-street parking facilities. $11,000,000.

▲ **Mich., Detroit**—City, Glenn C. Richards, comr., City County Bldg.,
wid'n. East Grand Blvd. from East Jefferson to Mack Rd., to relieve Belle Isle to and from Bottleneck, $1,000,000;
wid'n. McNichols Rd. from Wyoming to Livermore Rds., $2,473,000;
wid'n. Woodward Ave. from Jefferson Ave. to Michigan Ave., $6,950,000;
Priority No. 1 channelizing left turns at intersections, $100,000;
Priority No. 2, wid'n. Franklin Randolph to Brush Rds., $68,000;
Priority No. 3, addn. south side Eight Mile Rd. to Groesbeck to Kelly Rd., $61,000;
Priority No. 4, wid'n. Schaefer between Seven and Eight Mile Rds. increase width from 20 to 46 ft. pavement, $335,000;
Priority No. 5, wid'n. Grand Blvd. from Churchill to Linwood Rds. from 50 ft. pavement to 4 lanes, $558,450. M. F. Wagnitz, city engr. CD 3/30/43.

▲ **OHIO**—State Hy. Dpt., Columbia,
Columbiana Co.—constr. arterial freeway to speed traffic from Ohio-Pennsylvania Line to US Rte. 30 in California Hollow. $9,000,000. Michael Baker, Jr., Rochester, Pa., consult. engr.

▲ **Tex., Lubbock**—City, City Hall, voted bonds, street paving and improvs. $1,500,000. CD 10/11.

▲ **Wis., Milwaukee**—Comrs. Milwaukee Court House, Interchange near Milwaukee County Stadium. Over $2,000,000. Howard, Tammen, Needles & Bergendoff, 1805 Grand Ave., Kansas City 8, Mo., consult. engrs.

EARTHWORK, WATERWAYS

▲ **Calif., San Rafael**—Marin Co., c/o Director P. Wks., 1711 Grand Ave., dredging, levee, installing pumps for carrying water into the bay, Novato Area, $3,600,000.

▲ **New York**—Long Island State Park Comn., Belmont Lake State Park, Babylon, erosion control program for South Shore of Long Island along 25 mi. stretch from Jones Inlet to Fire Island lighthouse, $2,000,000 To go ahead in 1956-57.

▲† **Oregon**—U. S. Eng., 628 Pittock Block, Portland, Cougar Reservoir, South Fork of the McKenzie River. Total est. $38,000,000. ($500,000 appropriated).

† **Oregon**—U. S. Eng., 628 Pittock Block, Portland, Lookout Point Reservoir on Willamette River. $200,000.

▲† **Oregon**—U. S. Eng., 628 Pittock Block, Portland, six 78,000 kw. generators for the Dalles Power House on Columbia River. $10,000,000.

▲† **Oregon**—U. S. Eng., 628 Pittock Block, Portland, Hills Creek Reservoir on Willamette River, Middle Fork. Total est. $27,000,000 ($310,000 appropriated). CD 4/21/44.

AIRPORTS

▲ **N. Y., Idlewild**—HOTEL—Port of New York Auth., 111 8th Ave., New York, Zone 11, 250-room hotel, 10-acre tract, Van Wyck Expressway and Southern Parkway, New York International Airport. $2,500,000.

▲ **Wash., Seattle**—HANGAR—Pacific Northern Airlines, Exchange Bldg., Zone 4, hangar at Seattle-Tacoma International Airport. $1,000,000. Work may start 1956.

LATIN AMERICA

▲ **Mexico**—Srla. de Recursos Hidraulicos, Reforma, 69, Mexico City, plans irrigation dam, Niagra. $8,000,000.

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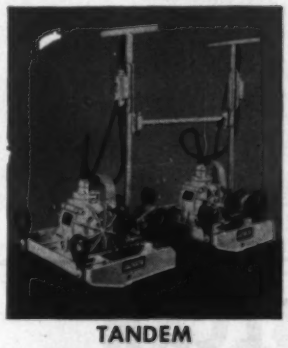

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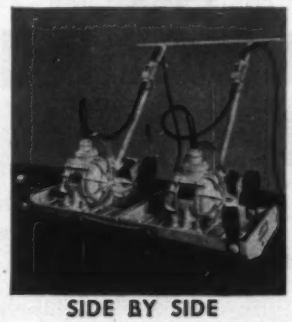

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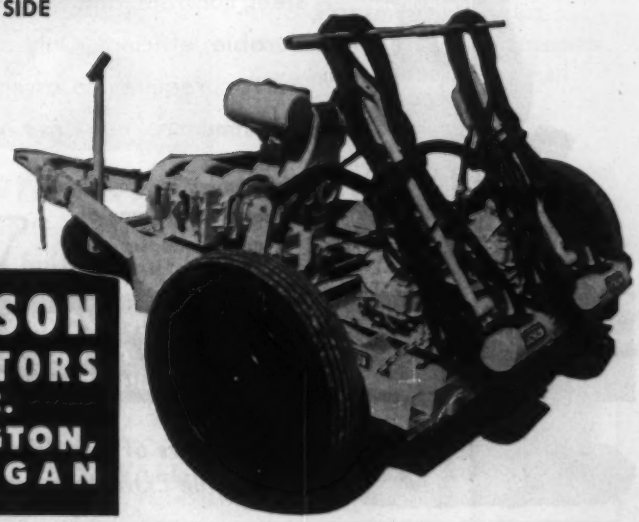

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increases service life 100%

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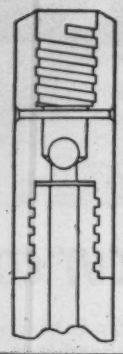
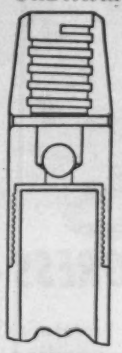


Thick, heavy, rugged barrel and head increase service life by 100%!

Note the thick shoulder of the LYNAC Head.

ORDINARY



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Compare the thin, easily cracked shoulder of the standard head.

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PUBLIC BUILDINGS

▲ **Calif., Campbell**—SCHOOLS—Cambrian Union Elementary School Dist., 481 E. Casey Rd., voted $1,800,000 bonds Nov. 8, 3 new schools, existing schools addns.

▲ **Calif., Salinas**—SCHOOL—Salinas Union High School Dist., 431 W. Alisal St., defeated bonds, high school, $1,650,000.

▲ **Calif., San Francisco**—COURT HOUSE—City and San Francisco Co., P. Utilities Comn., City Hall, defeated bonds Nov. 8, court house with garage space, facilities at or near Civic Center. $13,000,000.

▲ **Calif., Stockton**—HIGH SCHOOL—Stockton City Unified School Dist., c/o Superintendent, 324 N. San Joaquin St., plans by John Carl Warnecke, 507 Howard St., Alonzo Stagg Senior High School, swimming pool. $2,500,000. CD 12/15/54.

▲ **Colo., Lakewood**—SCHOOLS—Jefferson County School Dist. No. 1, Lakewood, voted bonds Nov. 8, new high schools for Lakewood and Wheatridge and addns. to other schools. $7,750,000. CD 9/30.

▲ **Ill., Hillside and Maywood**—SCHOOLS—Proviso Twp. High School Dist., 807 S. 1 Ave., Maywood, plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, Zone 6, Proviso Twp. West High School in Hillside and Proviso Twp. High School in Maywood Addition. $6,000,000.

▲ **Ill., Oak Park**—SCHOOLS—School Dist. 97, 122 Forest Ave., plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, Zone 6, Hatch Elementary School and gymnasium addn., $750,000; Hawthorne Grade School addns., $350,000, CD 2/21/52; Longfellow Grade School addns., $890,000; Irving Grade School addns., $825,000; Mann Grade School addns., $590,000, CD 2/21/52; Holmes School and gymnasium, $1,330,000; Lincoln School and gymnasium addns., $950,000.

▲† **Iowa, Burlington**—POST OFFICE—General Services Admin., GXA Region 6, 2306 E. Bannister Rd., Kansas City, Mo., plans by Dane D. Morgan & Assoc., 217 F & M Bank Bldg., Post Office. $1,328,987. A lease-purchase project.

▲ **Ky., Lexington**—DORMITORY—State, Div. Purchases, Frankfort, plans by Brock & Johnson, 159 Barr St., 4 story girls' dormitory University of Kentucky, $1,000,000. Staggs & Fisher, 170 Walnut St., consult. engrs. CD 4/14.

▲† **Md., Baltimore**—SOCIAL SECURITY—General Services Admin., Public Bldgs. Service, 19 St. and F Sts. N. W., Wash., D. C., plans by Buckler, Fenhagan, Meyer & Ayers, and Fisher, Nes, Campbell & Assoc., 2 W. Preston St., Zone 1, Social Security bldgs., 10 story, 50x300 ft. accounting bldg., 5 story, 425x625 ft. bldg., brick, limestone, rein. con., steel, Gwynn Oak Ave. Exten. and Dogwood Rd., Woodlawn St. $27,000,000. Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore, Zone 2, and Van R. P. Saxe, 1701 St. Paul St., Baltimore, Zone 2, mech. engrs. CD 12/17/53.

▲ **Mich., Fraser**—SCHOOL—Village, Fraser School Dist., high school. $1,300,000.

▲ **Mich., Grosse Pointe**—SCHOOLS—Grosse Pointe Consolidated School Dist., James W. Lee, pres., $3,500,000 bond election Jan. 24, Junior High School, Chalfonte and Lothrop Sts., $2,000,000; two swimming pool addns. to Junior High Schools, Grosse Pointe Park and Grosse Pointe Woods. CD 6/22/54.

▲ **Mich., Mount Clemens**—SCHOOL—City, Bd. Educ., $2,250,000 bond election Dec. 12, 3 elementary schools; high school addn.

▲ **Minn., Bloomington (Minneapolis, P. O.)**—SCHOOLS—Bd. Educ., A. Moir, clk., $3,800,000 bond election Dec. 19, high school, between 88 and 90 Sts., $3,000,000; and between Queen and Thomas Aves., elementary school at W. 88 St. and Humboldy Ave. S., school sites and equip., $500,000. CD 8/2.

▲ **Mo., Normandy (St. Louis 21 P.O.)**—SCHOOL—Normandy School Dist. Bd. Educ., Ward E. Barnes, supt., 7837 Natural Bridge Rd., Zone 21, plans by Kenneth E. Wischmeyer, Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, high school on present Senior High School campus, St. Charles Rock Rd. and Lucas and Hunt Rd., $1,964,800. CD 10/31.

▲† **Neb., Omaha**—POST OFFICE, etc. General Services Admin., General Services Bldg., Wash. 25, D. C. plans by Steele, Sandham & Steele, 412 Electric Bldg., post office and court house. $9,580,000. Henningson, Durham & Richardson, Inc., 2962 Harney St., and Kirkham Michael & Assocs., 825 Omaha Loan & Bldg. Assn. Bldg., consult. engrs.

▲ **N. J., Pennington**—HIGH SCHOOL—Hopewel Twp. School Bd., Academy St., plans by Hankin, Stull & Backes, 495 W. Hanover St., Trenton, high school, E. Delaware Ave. extension near Route 69, $1,700,000.

▲ **N. J., Roselle Park**—SCHOOL EXPANSION—Bd. Educ., Roselle Park, special bond election Dec. 15, school expansion program, $1,600,000.

▲ **N. Y., Hamilton**—SCHOOL—Central School Dist. No. 1, Towns of Hamilton, Eaton and Madison, constr. Junior-Senior High School. $1,500,000.

▲ **N. Y., New York**—HOUSES—New York City Housing Auth., 299 Broadway, Zone 7, Samuel Gompers Houses (city) for 800 apartments on site bounded by Pitt, Stanton, Columbia, Delancey, Sheriff and Rivington Sts., Proj. NYS-29. $12,800,000.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, Zone 7, Vladeck II Houses for 1,000 families, site bounded by Montgomery St., Henry St., and F. D. R. Dr., FAP No. 5-28. $12,000,000. CD 1/5/45.

▲ **N. Y., New York**—HOUSES—New York City Housing Auth., 299 Broadway, Zone 7, James Monroe Houses (city) for 400-apartments, on site bounded by Soundview Ave., Bruckner Blvd. and Taylor Ave., Story Ave., Rosedale Ave. and St. Lawrence Ave., City Proj. NYC-31. **$4,800,000.** CD 1/5/45.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, Zone 7, Cathay Houses for 300-families, site bounded by Worth St., Park Row, Pearl St., State Aid Proj. NYS-80. **$3,600,000.** CD 1/5/45.

▲ **N. C., Raleigh**—HOSPITAL—Bd. Comrs. Wake Co., John P. Swain, chn., Court House, bond election Dec. 13, general hospital, **$5,000,000.** Site not selected. CD 9/3/52.

▲ **O., Ashtabula**—SCHOOL—Ashtabula Local School Dist. voted **$1,200,000** bonds Nov. 8, schools. CD 8/19.

▲ **O., Barberton**—SCHOOL—Bd. Educ., voted $3,000,000 bonds Nov. 8, schools. CD 1/28/52.

▲ **O., Bryan**—SCHOOL—Bd. Educ., voted **$1,750,000** bonds Nov. 8, schools, incl. Senior High School. CD 7/20.

▲ **O., Bucyrus**—SCHOOL—Bd. Educ., voted **$1,650,000** bonds Nov. 8, schools. CD 7/13.

▲ **O., Columbus**—HOUSING—Columbus Metropolitan Housing Auth., 425 W. Rich St., 524 unit, brick, stucco, wood apartments. St. Clair and Bonham Aves. **$6,000,000.** FPHA has approved project. CD 8/14/53.

▲ **O., Dayton**—JUVENILE COURT CENTER—Comrs. Montgomery Co., Courthouse, defeated $1,400,000 bonds Nov. 8, juvenile court center, **$1,600,000.** CD 7/20.

▲ **O., Dover**—SCHOOL—Dover Bd. Educ., defeated **$1,200,000** bonds Nov. 8, schools. CD 8/16.

▲ **O., Kettering**—SCHOOL—Bd. Educ., voted **$2,500,000** bonds Nov. 8, high school, at Old Lefevre site between Shroyer Rd. and Far Hills Ave.; grade school, East Dorothy Lane near San Rae Dr. CD 7/20.

▲ **O., New Philadelphia**—SCHOOL—Bd. Educ., voted **$1,780,000** bonds Nov. 8, school imprvs., expansion. CD 8/16.

▲ **O., Salem**—SCHOOL—Bd. Educ., E. S. Kerr, supt. Schools, voted **$2,585,000** bonds Nov. 8, Senior High School; converting present bldgs. into Junior High School. Fulton, Krinsky & DelaMotte, 6014 Euclid St., Cleveland, Zone 3, archts. CD 8/9.

▲ **O., Toledo**—SCHOOL—Oregon Twp. School Bd., I. Wm. Miller, exec. head, 5721 Seaman St., voted $1,700,000 bonds Nov. 8, elementary school, modernization existing schools. Bellman, Gillette & Richards, 518 Jefferson St., archts. CD 8/12.

▲ **O., Troy**—SCHOOL—Bd. Educ., voted **$2,975,000** bonds Nov. 8, high school, Stanton Rd. west of N. Market St. CD 7/26.

▲ **O., Upper Arlington**—SCHOOL—Bd. Educ. voted **$1,200,000** bonds Nov. 8, grade school on 6 acre tract at Wickliff and Cimarron Rds. CD 8/17.

▲ **O., Washington Court House**—SCHOOL—Bd. Educ., Miami Trace School Dist., (Concord, Greene, Madison, Jasper, Marion, Perry, Union and Wayne), Washington Court House, defeated **$1,650,000** bonds Nov. 8, school. CD 8/10.

▲ **O., Wilberforce**—ACADEMIC, etc.—State Dpt. P. Wks., State Dpts. Bldg., Columbus, imprv. Central State College with 7 academic bldgs., 4 dormitories, 3 utility units, **$4,300,000.**

▲ **O., Xenia**—SCHOOL—Bd. Educ. voted $1,380,000 bonds Nov. 8, high school on site of Cox Athletic Field, **$1,024,520;** altering other schools, **$355,480.** CD 7/20.

▲ **Pa., Erie**—SCHOOL—School Dist. of Erie, Pub. Library Bldg., voted **$1,000,000** bonds Nov. 8, 2 story, part bsmnt., brick Jo Ann Connell Grade School, Wm. Brennan, 315 Marine Bank Bldg., archt. CD 9/16.

▲ **Pa., Havertown**—SCHOOLS—Haverford Twp. School Dist., Havertown, voted **$2,000,000** bonds Nov. 8, schools. CD 3/10.

▲ **R. I., Cranston**—HIGH SCHOOL—City, School Comn., Park Ave., plans by Cull, Robinson & Green, 385 Benefit St., Providence, Junior-Senior High School, City Gravel Bank off Phenix Ave. **$3,535,000.** CD 3/17/49.

▲ **Tenn., Nashville**—CAPITOL—State of Tenn., State Capitol Bldg., plans by Stromquist-Woolwine, Harwood & Clark, American Trust Bldg., remodeling exterior of of the state capitol bldg. **$1,500,000.** CD 11/13/53.

▲ **Tex., Lubbock**—GENERATING UNIT—City, City Hall, voted bonds, electric power plant generating unit, **$3,250,000.** CD 10/12.

▲ **Wash., Everett**—SCHOOLS, etc.—School Dist. No. 2, Everett, voted bonds Nov. 8, Junior High School, $1,500,000; elementary school, $450,000; Junior College, $1,700,000. CD 9/1.

▲ **Wash., Pullman**—DORMITORIES—Washington State College, Pullman, plans by P. Thiry, 800 Columbia St., Seattle, two women's dormitories, $500,000 each; 100 housing units for married students, $1,000,000.

▲ **Ont., Sarnia**—POST OFFICE, etc.—Dpt. P. Wks., Hunter Bldg., Ottawa, plans by Riddle, O'Connor & Assocs., 422 Wellington St., London, 160x280 ft. post office and customs house, David St. **$2,000,000.** Bids in one month. Bruce A. Hastings, Queens Ave., London, consult. engr. A. A. Anderson, c/o owner, ch. engr. CD 9/18/52.

COMMERCIAL BUILDINGS

▲ **Calif., Sharp Park**—SHOPPING CENTER—Ray T. Higgins, Realtor, 1227 San Francisco Blvd., shopping center, home development and apartment development **$2,000,000.**

▲ **Conn., West Hartford**—RESIDENCES—The Suburban Development Corp., Robert Burnham, pres., 1383

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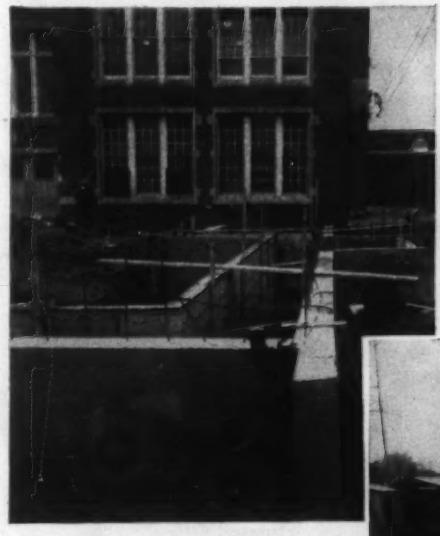

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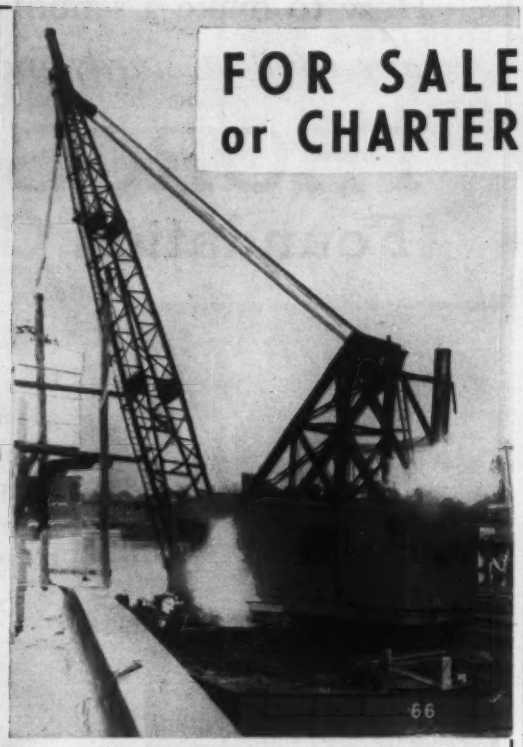

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22nd St. & Washington Ave. Philadelphia 46, Pa. Main Office

New York Office 44 Whitehall St., N. Y. 4, N. Y.

New Britain Ave., plans by Raymond Brown, Jr., 125 Trumbull St., Hartford, 216 homes, Logue Ave. Acres, south side New Britain Ave. $4,100,000. George Jenkinson, 846 Farmington Ave., consult. engr.

▲ **Iowa, Mason City**—SHOPPING CENTER—Levit & Siegel, 120 S. La Salle St., Chicago, Ill., shopping center with parking area. $1,000,000.

▲ **Mass., Hanover**—DORMITORY—St. Coletta School, Washington St., plans by John A. McPherson, 250 Huntington Ave., Boston, masonry, steel dormitory. $1,000,000.

▲ **Mass., Tewksbury**—SHOPPING CENTER—A. Tambone & Son, 88 Main St., Reading, plans by John G. Danielson, 15 Court St., Boston, 1 story, cinder block shopping center, Rte. 38. $1,600,000.

▲ **Minn., Minneapolis**—HOSPITAL—Masonic Cancer Relief Com., D. L. Cowling, chn., Northfield, Masonic Memorial Cancer Relief Hospital, main campus of University of Minnesota. $1,000,000.

▲ **Minn., Minneapolis**—OFFICE—J. C. Penny Co., 2025 Nicollet Ave., 6 story office and store bldg., also reconditioning 4 floors of connecting Syndicate Bldg., 6 St. and Nicollet Ave. $3,000,000. To begin construction next spring.

▲ **Minn., Rochester**—HOUSING—Ted Armit, Rochester, 400 houses and a commercial area, on County Rd. 22, $5,000,000.

▲ **Minn., St. Anthony (Minneapolis P.O.)**—SHOPPING CENTER—M. Saliterman, c/o Thorshov & Cerny, archts., 500 Metropolitan Bldg., Minneapolis, 20 store St. Anthony Shopping Center, Hys. 8 and 33. $1,300,000.

▲ **Minn., St. Louis Park**—OFFICE and WAREHOUSE—Coast-to-Coast Stores, Inc., A. C. Malamed, pres., 29 S.E. Main St., Minneapolis, plans by A. Epstein & Sons, Inc., 2011 W. Pershing Rd., Chicago, Ill., 350,000 sq. ft. warehouse, office, Excelsior Blvd. $2,500,000-$3,000,000. CD 9/7.

▲ **Nev., Las Vegas**—HOTEL—The Flamingo Hotel, c/o pres., LA Hy., hotel addn. $2,250,000.

▲ **N. Y., New York**—MOSQUE—American Islamic Review Mosque Committee of U.S.A., c/o Irwin S. Porter & Sons, Metropolitan Bank Bldg., Wash., D. C., mosque on United Nations Plaza. $1,000,000.

▲ **N. Y., New York**—OFFICE—Chase Manhattan Bank, 18 Pine St., Zone 5, office and plaza on site bounded by Liberty, Pine, Nassau, and William Sts. $10,000,000.

▲ **O., Cleveland**—ATOMIC REACTOR, etc.—Case Institute of Technology, 10900 Euclid Ave., Zone 6, atomic reactor on campus. $1,000,000, CD 6/6/50; student auditorium, $500,000.

▲ **O., Lakewood**—APARTMENT—Golden Age Co-operative, Inc., DeAry G. Barton, chn., 810 Union Commerce Bldg., Cleveland, Zone 14, plans by Weinberg & Teare, Citizens Bldg., Cleveland, Zone 14, 10 story, brick, aluminum apartment, 11850 Edgewater Dr. $3,000,000. Will begin in the Spring. Bidding will be by negotiation or invitation.

▲ **O., Parma** — SHOPPING CENTER — Zehman-Wolf & Sherman Constr. Co., 13484 Cedar Rd., Cleveland, Zone 18, 150,000 sq. ft. shoppng center, 47-acre site at Snow Rd. exten. and Broadview Rds. $5,000,000. Depends on rezoning.

▲ **Pa., Phila.**—STUDENT UNION—LaSalle College, 20 and Olney Ave., student union bldg. $1,000,000.

▲ **Tenn., Nashville**—DORMITORIES—Vanderbilt University, Nashville, six 100-room mens dormitories to form quadrangle. $2,000,000. To be completed by 1957.

▲ **Tex., Abilene**—DORMITORY, etc.—Abilene Christian College, B. Sherrod, pres. Bd. Trustees, Abilene, Dormitory No. 1, $1,500,000; Dormitory No. 2, $1,250,000; Dormitory No. 3, $879,500; auditorium, $700,000; music cnter, $1,500,000; library, $750,000; boiler heating plant, $150,000; stadium, $975,000; 10,000 capacity field house, $1,350,000. CD 5/11.

▲ **Tex., Jacksonville**—SEMINARY—North American Baptist Assn., c/o Dr. G. Kellar, c/o Baptist College, Jacksonville, constr. National Seminary. $2,000,000.

▲ **Va., Alexandria**—SHOPPING CENTER—Burman Properties, Inc., 1200 15th St. N.W., Wash., D. C., plans by Evan Conner, 206 S. Virginia Ave., Falls Church, 15-store shopping center, 10-acre tract, Duke St. $2,000,000.

▲ **Wash., Seattle** — HOTEL — Olympic, Inc., Olympia Hotel, 4 Ave and Seneca St., plans by Naramore, Bain, Brady & Johanson, 904 7th Ave., new entrance to hotel, concl. constr. of addn. $1,000,000. CD 6/15/53.

▲ **Wis., Milwaukee**—SCHOOL OF SOCIAL WORK, etc.—Marquette University, 615 N. 11 St., school of social work, $1,800,000; physical education and recreation facilities, $1,500,000; nursing college addn., $500,000; residence halls, $3,000,000; science bldg., $1,116,000; dental school addn., $687,000; communications bldg., $1,447,000. A 10 year development program.

▲ **Ont., Toronto**—HOTEL—National Management Ltd., 620 Cathcart St., Montreal, Que., plans by Henry Langston, 1375 Freen Ave., Montreal, Que., 18 story with provision for future 5 floor addition, steel frame, aluminum, glass, concrete Lord Simcoe Hotel, 2 underground floors for parking. $9,500,000. Edgar A. Cross, 991 Bay St., consult. engr. CD 9/30.

▲ **Ont., Windsor**—SHOPPING CENTER—Principal Investments Ltd., 133 Richmond St. W., Toronto, shopping center, incl. office section, medical offices, recreational center, incl. theatre and bowling alley. $10,000,000.

INDUSTRIAL BUILDINGS

▲ **Md., Silver Spring**—LABORATORY—Vitro Laboratories, Div. Vitro Corp. of America, 261 Madison Ave., New York 16, N. Y., plans by Leon S. Barton, 101

Park Ave., New York 17, N. Y., 55,000 sq. ft. structural, steel, brick, concrete laboratory, Georgia Ave., Wheaton Woods, $1,000,000.

▲ **Mich., Saginaw**—FACTORY—Saginaw Steering Gear Div., General Motors Corp., General Motors Bldg., Detroit, 220,000 sq. ft., brick, concrete, steel factory, $2,500,000. Argonautl Realty Div., c/o owner, engrs.

▲ **Minn., Fairmont**—FACTORY—Minnesota Mining & Mfg. Co., 900 Fauquier Ave., St. Paul, 100,000 sq. ft. factory addn. $1,000,000.

▲ **Mo., Robertson (St. Louis 21 P.O.)**—PLANT—Ford Motor Co., Lindbergh Blvd. and Hy. 140, Robertson, 258,000 sq. ft. Mercury Division Plant addn. to incl. two wings and a bay exten. full length present main assembly bldg. addn. warehousing and railroad facilities.

▲ **O., Clarington**—GENERATING PLANT—Ohio Power Co., 301 Cleveland Ave. S.W., Canton, steam generating plant on Ohio River. $125,000,000. To go ahead in 2-3 years.

▲ **O., Columbus** — FACTORY — Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., 1 story structural steel frame with concrete or brick sides factory for production of steering gear and small parts, employing 3,000. $10,800,000. Construction expected in January.

▲ **O., Middle Branch** — PLANT — Diamond Portland Cement Co., Middle Branch, plant for crushing, drying, grinding, blending raw materials, new kiln equipped with Humboldt type pre-heater; conversion of existing raw mills to cement grinding. $4,000,000.

▲ **O., Toledo**—REFINERY—Sun Oil Co., Woodville Rd. and city limits, alkylation unit, $1,200,000; laboratory unit, $500,000.

▲ **Okla., Tulsa**—PLANT—Douglas Aircraft Co., Inc., 2000 N. Memorial Dr., addnl. plant facility to mfg. transport planes. $1,000,000. Construction in winter of 1956. CD 9/8/54.

▲ **Pa., Altoona**—PLANT—Sylvania Electric Products Corp., Williamsport, 1 story, steel, 110,000 sq. ft. receiving tube mfg. plant. $3,000.000. CD 12/3/51.

▲ **Pa., Beaver**—WAREHOUSE—Westinghouse Electric Corp., Gateway Center, Pittsburgh, plans by Michael Baker, Jr., & Jos. Bientempo, Rochester, 1 story, brick, block, 151,200 sq. ft., warehouse and service bldg. $1,500,000. CD 10/27.

▲ **S. C., Spartanburg**—PLANT—Kohler Co., 44 High St., Kohler, Wis., plant for plumbing fixtures and other products. $5,000,000.

▲ **Tex., Clarksville**—PLANT—Texarkana & Clarksville Syndicate, Clarksville, cement mfg. plant, 4,000,000 annual capacity, 5 mi. east of here. $5,000,000.

▲ **Tex., Orange**—PLANT, etc.—Texas Portland Cement Co., Orange, plans by Goleman & Rolfe, 5100 Travis St., Houston, plant, offices and laboratories. Total est. $3,000,000. CD 9/2.

▲ **Alta., Edmonton**—PLANT—Alberta Pheonix Tube & Pipe Ltd., c/o Canadian Bechtel Ltd., 44 King St. W., Toronto, Ont., pipe mill plant, bldgs. to total approx. 80,000 sq. ft. floor space, main bldg. approx. 120x600 ft. with auxiliary structures such as locker house, cafeteria, etc. $7,000,000. Canadian Bechtel Ltd., 44 King St. W., Toronto, Ont., proj. mgr.

UNCLASSIFIED

▲† **Calif., San Francisco**—SHIPYARD SHOP, etc.—Dist. P. Wks. Office, Twelfth Naval Dist., Design Div. San Bruno, electronic shop bldg., Bldg. 414, heavy storage shop alterations, Hunters Point Shipyard $2,000,000. Rogers Eng. Co. Inc., 16 Beale St., San Francisco, consult. engr.

▲† **Calif., San Francisco**—DRY DOCK—Twelfth Naval Dist., San Bruno, dry dock, San Francisco Naval Shipyard, Hunters Point, $35,000,000. Preliminary estimates to be completed by Apr. 1. Indenco Engineers, Inc., 960 98th Ave., Oakland, Calif., and Fredric R. Harris, Inc., 27 William St., New York, N. Y., consult. engrs.

▲ **Mich., Lansing**—OFF STREET PARKING FACILITIES—City, Dpt. P. Wks., Thornton Collins, City Hall, defeated $2,700,000 bonds Nov. 8, acquire land and develop off street parking facilities. CD 11/2.

▲ **New York**—GAS LINE—Brooklyn Union Gas. Co., 176 Remsen St., Brooklyn, and Long Island Lighting Co., 250 Old Country Rd., Mineola, Southern Natural Gas line, 24 mi. 26 and 24 in. pipe line starting at 35 St. and Third Ave. in Brooklyn, and ending at Garden City, Nassau, $5,000,000. To go ahead in spring of 1956.

▲ **O., Toledo**—HARBOR DEVELOPMENT—Toledo-Lucas County Port Auth., Toledo, voted $2,900,000 bonds Nov. 8, harbor development program. CD 12/30/52, under Earthwork, etc.

▲ **Texas**—OIL PIPE LINE—Sinclair Pipe Line Co., Gulf Bldg., Houston, 300 mi. 18 and 20 in. crude oil pipe line, Jacksboro to Houston. $14,000,000.

▲ **Tex., Lubbock**—ELECTRIC LINES, etc.—City, City Hall, voted bonds, electric lines, $2,043,000; rehabilitation and imprvs. electric power sys. $750,000; street and traffic lights, $409,000. CD 10/11.

▲ **Wash., Longview**—PORT FACILITIES—Port of Longview, Longview, defeated bonds, port facilities expansion $1,500,000. L. B. Rice, Myklebust Bldg., archt. CD 10/6.

▲† **Wash., Tacoma**—PIER—P. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, reconstr. Pier 4 and part of Pier 3, Naval Station. $3,000,000. H. J. Whitacre & Assocs., 2907 A St., consult. engrs. Bids 1956. CD 3/3.

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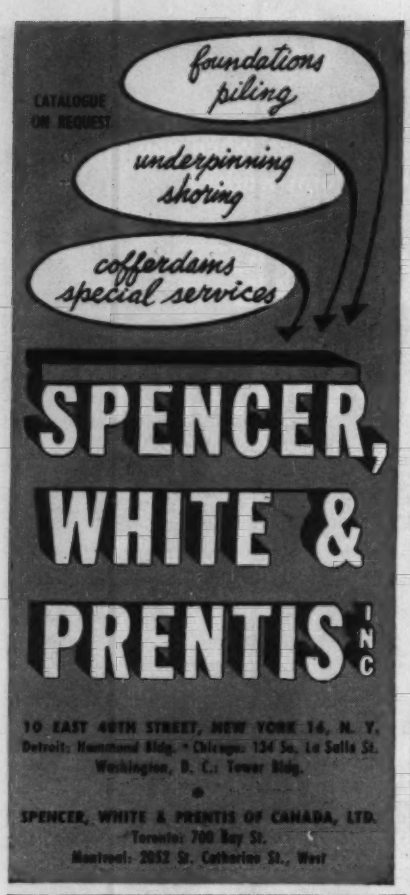
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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 13 Massachusetts
STREETS AND ROADS
December 6, 13 Massachusetts

BUILDINGS—BA

▲ **Conn., Simsbury**—SCHOOL—BA 12/7—Town, School Bldg. Comn., c/o Dr. Henry James, supt. Schools, Simsbury, Junior High School, Firetown Rd. $1,000,000. Plans deposit $75. Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, archts. CD 7/14.

▲ **Mass., Amherst**—PHYSICAL EDUCATION—BA 12/15—State, University of Mass., Kenneth W. Johnson, treas., Amherst, U-603 No. 1 women's physical education bldg., University of Mass. $1,490,000. Plans deposit $100, refundable. Perry, Shaw, Hepburn & Dean, 31 St. James Ave., Boston, archts. CD 11/24/53.

HEAVY CONSTRUCTION—LB & CA

▲† **Petricca Constr. Co.**, 534 West St., Pittsfield, Mass. CA **$2,178,611.** Hoosic River Basin, North Adams Flood Control Proj., Unit No. 3, North Adams, MASSACHUSETTS. U. S. Eng., 111 E. 16 St., New York, N. Y. CD 10/11, under LB.

BUILDINGS—LB & CA

▲ **Tornabene Bros. Co.**, 170 Needham St., Newton Upper Falls, Mass. LB **$1,269,000.** Junior-Senior High SCHOOL, LITTLETON, MASS. Town, Junior-Senior High School Planning Comn., James Stuart, chn., Littleton, Mass. Bids Nov. 18. CD 10/21.

Town, Bd. Educ., 51 Memorial Rd., West Hartford, Conn., rejected bids Nov. 3, Henry A. Wolcott, Elementary SCHOOL, New Britain Ave. near Cobin's Corner, WEST HARTFORD, CONN. LB **$850,796.** Will re-advertise. CD 11/9, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 6 Maryland December 8 New York
STREETS AND ROADS
December 8 New York December 16 Pennsylvania

HEAVY CONSTRUCTION—LB & CA

▲ **PENNSYLVANIA**—State Hy. Dpt., 560 No. Office Bldg., Harrisburg,
Latrobe Road Constr. Co., P. O. Box 150, Latrobe, Pa. LB **$2,193,956.** truss I-beam bridge, c. conc. 2,018 ft. Johnstown City, Franklin Boro, T. R. U. S. 260, Cambria Co. Bids Nov. 18. CD 10/25.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
Pa.—**J. Robert Bazley, Inc.**, P. O. Box 117, Pottsville, Pa. LB, **$1,434,612.** constr. 26,150 ft. rein.-con. 24 ft. wide, 1 rein.-con. arch I-beam bridge, Elmhurst and Roaring Brook Twps., Dunmore Boro, U. S. 611, Lackawanna Co.;
Pa.—**Seigmund Gavlik**, P. O. Box 44, Glenwillard, Pa. LB **$206,846.** wid'n. left and right 5,912 ft. existing road with c. conc. Moon Twp., LR 02003 (5)1 Allegheny Co.;
Pa.—**Charles Balazick**, Jefferson, Pa. LB **$166,704.** constr. 1,232 ft. crushed aggregate base with bit. surf. bridge repairs Everson and Scottdale Boros, T.R. U. S. 119, Fayette and Westmoreland Counties;
Pa.—**L. R. Owen Co.**, R.D. 2, Johnstown, Pa. LB **$218,825.** wid'n. 21,174 ft. existing road with crushed aggregate base 4 ft. Ogle Twp., T.R. 56, Somerset Co.;
Pa.—**Middlecreek Constr. Co.**, Middleburg, Pa. LB **$353,902.** wid'n. 7,090 ft. existing road with crushed aggregate base Lewisburg Boro, Kelly and E. Buffalo Twps., T.R. 15, Union Co. Bids Nov. 18. CD 10/25.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
C. W. Lawson, Inc., Williamsburg, Va. LB **$865,389.** grading, surf. 4.12 mi. Baltimore-Anne Arundel Co. Beltway, Contr. AA 460-6-520, Anne Arundel Co. Bids Nov. 15. CD 11/4.

▲ **C. J. Langenfelder & Sons, Inc.**, 8427 Pulaski Hy., Baltimore, Md. LB **$2,541,689.** Contr. PT-102, section of south approach expressway, Patapsco Tunnel Proj., MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. Bids Nov. 22. CD 10/25.

▲† **Alexander & Repass**, 2005 Bladensburg Rd. N. E., Wash., D. C., CA, **$1,298,000** Third High Reservoir North, CIVENG-49-080-56-2, WASH. D. C. U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C. Bids Oct. 27, awarded Nov. 22. CD 10/31, under LB.

BUILDINGS—LB & CA

Sarmon Homes, c/o John Burton, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$800,000.** 54 HOUSES on tract at 221 St. and 145 Rd., LAURELTON, N. Y.

▲ **Earl L. Cump, Inc.**, 251 Park Ave., Chambersburg, Pa. LB **$1,083,000.** general contract. SECONDARY SCHOOL for Cresson Joint School Bd., CRESSON, PA. P. School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Nov. 22. CD 10/19.

▲ **Charles H. Tompkins Co.**, 907 16 St. N.W., Wash., D. C., CA **$4,000,000.** 13 story, OFFICE, 19 and "H" Sts. N. W., WASH., D. C. International Monetary Fund for Reconstruction & Development, 1818 "H" St. N. W., Wash., D. C. A. R. Clas, Wyatt Bldg., Wash., D. C., archt.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲† **Southern Roadbuilders, Inc.**, Augusta, Ga., LB, **$1,398,954,** parking aprons, MacDill Air Force Base, ENG-08-123-56-25, TAMPA, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Nov. 16. CD 10/10.

BUILDINGS—LB & CA

▲ **Anco Builders**, 2007 Mt. Vernon Ave., Alexandria, Va., Own Forces, **$3,000,000,** 134-HOMES on 48-acre tract of land adjoining the Bellehaven Country Club, ALEXANDRIA, VA.

▲ **Southeastern Constr. Co.**, 204 High St. Morgantown, W. Va., CA, **$1,300,000.** machinery foundations for new Ravenswood PLANT, RAVENSWOOD, W. VA. Kaiser Aluminum & Chemical Corp., Kaiser Bldg., 1924 Broadway, Oakland, Calif. Bids Oct. 25. CD 10/11.

▲ **M. T. Broyhill**, 2125 North 19 St., Arlington, Va., Owner Builds, **$5,600,000,** 400-brick-detached HOMES, Etzell Rd. near LINCOLNIA, VA.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 7 Michigan
STREETS AND ROADS
December 6, 7 Michigan December 6 Ohio

▲† **Illinois**—SPECIAL AAA SITES—BA 12/20—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54, Special AAA sites and related work, Sites C-44, Dual and C-43H, Cook Co., Serial No. ENG-11-032-56-16. Extended date. CD 11/1.

BUILDINGS—BA

▲ **O., Warrensville**—HOSPITAL—BA 12/16—Cuyahoga County Hospital, Court House, Cleveland, Zone 13, general and electrical work only for county hospital addn. $1,500,000. Plans deposit $50, Horn & Rhinehart, 1240 Huron Rd., Cleveland, Zone 15, archts. Bids 11/10 rejected. CD 11/17, under LB.

▲ **Ill., Waukegan**—SHOPPING CENTER—Bids Asked—Clarence L. Dahlquist agent and archt., 1625 Glenview Rd., Glenview, shopping center at Glen Flora St. and Lewis Ave. $2,000,000.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—**Launder & Sons, Inc.**, Station E, Box 6, Toledo, O. CA **$1,025,928,** est. $1,161,600. Type T-71 and structure 3.333 mi., S.R. 53, Sect. 7.67, F-584 (2), city of Fremont and Sandusky Twp., Sandusky Co.;
O.—**Schoen Asphalt Paving, Inc.**, 310 S. Westwood Ave., Toledo, O. CA **$536,218,** est. $543,800. Type T-35 2.046 mi., U. S. R. 23B, Sects. (12.20-14.20), Washington Twp., Lucas Co.;
O.—**C. F. Replogle Co.**, N. Court St., Circleville, O. CA **$1,689,558,** est. $2,054,900. Type T-71 and structures 5.054 mi. U.S.R. 22, Sects. (3.27-6.43), Muskingum Co. Grand total $3,251,704. CD 11/15, under LB.

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
O.—**J. A. Jones Constr. Co.**, Box 966, Charlotte, N. C. LB **$5,252,297,** est. $5,607,500 (9 bidders) Type T-71 and structures 13.064 mi., USR 40R-23.41, USR 40R-0.00 (Clark, Greene and Montgomery), Clark and Montgomery Counties; LB **$2,741,199,** Est. $3,143,500. (11 bidders) Type T-71 and structures 8.56 mi., USR 30SR-6.21, USR 30R-0.00B, Richland Co.;
O.—**Sutton & Stewart, Inc.**, Main St., Bridgeport, O. LB **$359,340,** est. $384,900 (2 bidders) Type T-35 7.382 mi., SR-9-(2.55-3.20), S 566 (1), (village of Hanoverton), Columbiana Co.;
O.—**The Crawford Constr. Co., Inc.**, 782 Charles St., Galion, O. LB **$124,811,** est. $130,900. (1 bidder) Type T-71 and T-35 on B-119 and structure 0.805 mi., CR No. 58 TR No. 61, D-AD-S 14 (3), city of Shelby, Richland Co.;
O.—**W. E. Engle**, McArthur, O. LB **$117,615,** est. $126,700 (5 bidders) Type T-32 on B-119 1.259 mi., SR 727-(3.75-4.25), Clermont Co.;
O—**Rhoten Constr. Co.**, 16 E. Broad St., Columbus, O. LB **$492,900,** est. $587,900 (4 bidders) Type T-35 and structures 6.942 mi., USR 36-(13.14-15.43) (17.29), (19.73), Delaware Co.;
O.—**W. M. Brode Co.**, 100 Elizabeth St., Newcomerstown, O. LB **$465,674,** est. $474,600 (7 bidders) Type T-71 and structure 0.455 mi., USR 22-(16.73-17.15), Pickaway Co.
O.—**S. E. Johnson Co.**, P. O. Box 29, Maumee, O. LB **$88,535,** est. $87,900. (2 bidders) Type T-35 0.605 mi., SR 64 (9.15-9.39), Wood Co.
O.—**Joe Skinner**, Rte. No. 1, Belmont, O. LB **$234,151,** est. $312,000. (7 bidders) type T-35 on B-119

and structures 1.66 mi., SR 74-7.32, S-701 (5), Brown Co. Bids Nov. 16. CD 10/28.

National Constr. Co., 23500 Lakeland Blvd., Cleveland 23, O. CA **$839,081**, est. $1,000,000. 54 in. Highland Rd. water main, CLEVELAND, O. City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall, Cleveland 14, O. Bids Nov. 4, awarded Nov. 16. CD 11/21, under LB.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—**Louis Garavaglia**, Mound Rd., Center Line, Mich. LB **$3,482,916**, est. $3,000,000. (4 bidders) rein.-con., steel grade separation Edsel Ford Expressway over Dequindre Yards light power and signal utilities, UI X11 of 82-22-10, C1-UO (UI 391 66), Wayne Co.;

Mich.—**Darin & Armstrong, Inc.**, 2041 Fenkell St., Detroit, Mich. LB **$949,000**, est. $960,000. (6 bidders) grade separations a vehicular grade separation 2 railroad grade separtion structure, rein.-con. retaining walls, power light and signal utilities, 12 and Fenkell Sts. connecting road on 12 St. and two railroad tracks, UI X3 and UI B50 of 8-2R-12 C1 (UI 404 97 and 98), Wayne Co.;

Mich.—**Raff & Dexter**, 210 W. Greenlawn St., Lansing, Mich. LB **$127,723**, est. $150,000. (12 bidders) two rein.-con., steel bridges, 54 St. and G. R. Expressway over Buck Creek, FB2 of 41-24-6 C1-RO, F B1 of 41-24-26 C1-RO (F 140 15), Kent Co.; LB **$100,404**. Est. $110,000. (12 bidders) rein.-con., steel grade separation structure, 68 St. over Grand Rapids Expressway south of Grand Rapids, B B2 of 41-5-6 C1-RO (F 140 14), Kent Co. Bids Nov. 9. CD 11/2.

BUILDINGS—LB & CA

Wood Constr. Co., Bellefontaine, O. LB **$885,500**. new Elementary SCHOOL, alterations to present bldg., NEW RICHMOND, O. Bd. Educ., Market St., New Richmond, O. Bids Nov. 12. CD 10/14.

Suburban Constr. Co., 5824 Broadway, Gary, Ind., Own Forces, **$950,000**. 70 HOMES, HOBART, IND.

▲ **George A. Fuller Co.**, 111 W. Washington St., Chicago, Ill., CA Total est. **$15,000,000**. foundations for Chicago-Sun-Times NEWSPAPER PUBLISHING PLANT, Wabash Ave. at Chicago River, CHICAGO, ILL. Field Enterprises, Inc., 211 W. Wacker Dr., Chicago, Ill. Naess & Murphy, 80 E. Jackson St., Chicago, Zone 4, archts., Awarded Nov. 15, CD 7/14/54; **Bethlehem Steel Co.**, E. 3 St., Bethlehem, Pa., CA, structural steel work (Chicago, Ill.).

Midland Constr. Co., 222 W. Adams St., Chicago 6, Ill., CA, **$800,000**. CHURCH, CHICAGO, ILL. St. Ferdinand Parish, 5900 Barry Ave., Chicago, Ill. Barry & Kay, 53 W. Jackson St., Chicago 4, Ill., archts. Awarded Nov. 14.

▲ **Frank Messer & Sons, Inc.**, 4612 Paddock St., Cincinnati, O. CA Est. **$1,000,000**. site preparation and sub structure for 1,668,000 sq. ft. transmission PLANT, ADMINISTRATION and EMPLOYEES SERVICE BLDG., SHARONVILLE, O. Ford Motor Co., 3000 Schaefer St., Dearborn, Mich. CD 6/24.

▲ **Turner Constr. Co.**, 105 W. Adams St., Chicago, Ill., CA, **$6,000,000**. 17 story, 120x192 ft., OFFICE, Dearborn and Monroe Sts., CHICAGO, ILL. Inland Steel Co. 38 S. Dearborn St., Chicago, Zone 3, Ill. Bids Oct. 24, awarded Nov. 18, CD 9/28.

▲ **Highland Shores, Inc.**, 5532 W. Division St., Chicago, Ill., Own Forces, **$10,000,000**. 400 HOUSES, west HIGHLAND PARK, ILL.

J. Emil Anderson Co., 1809 Balmoral St., Chicago 40, Ill., CA, **$800,000** design and construct 80,000 sq. ft. FACTORY addn., MORTON, GROVE, ILL. Dole Valve Co., Oakton Ave. and Lehigh St., Morton Grove, Ill. Awarded Nov. 9.

▲ **Albert Jacobs Constr. Co.**, 1132 Lee Rd., Northbrook Ill., Own Forces, **$1,900,000**. 70 HOMES, sewers, paving and water lines, NORTHBROOK, ILL. Martin J. Green, 7538 S. Wabash St., Chicago, Ill., archt.

▲ **Jos. Beckman & Son**, 1725 Monroe St., Evanston, Ill., Own Forces, **$1,300,000**. 65 HOMES, ROSELLE, ILL. Brooks Buberus, 233 Northwest Hy., Park Ridge, Ill., archt.

▲ **Francis J. Corr, Inc.**, 1205 E. Saginaw St., Lansing, Mich. LB **$1,318,900**. (6 bidders) HEALTH CENTER, EAST LANSING, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids Nov. 15. CD 10/27.

▲ **Leo E. Kuhlman, Inc.**, 9716 James Couzens Hy., Detroit, Mich. CA Est. **$1,250,000**. HIGH SCHOOL, LAKE ORION, MICH. Bd. Educ., Lake Orion School Dist., Lake Orion, Mich. Bids Sept. 28. CD 9/9.

R. C. Hendrick & Son, 427 Atwater St., Saginaw, Mich. LB **$819,320**. general contract HIGH SCHOOL, MOUNT PLEASANT, MICH. Bd. Educ., Mount Pleasant, Mich. Bids Nov. 2. CD 10/6.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 13, 14 Texas
STREETS AND ROADS
December 13, 14 Texas

† **Texas**—BA 12/8—U. S. Eng., Box 1229, Galveston, repairing North Jetty at Aransas Pass, Port Aransas Aransas Co., Inv. No. CIVENG-41-243-56-23, Over $750,000. CD 9/30/54.

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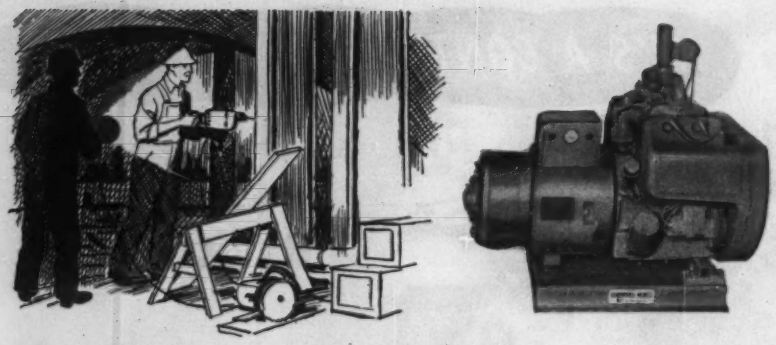

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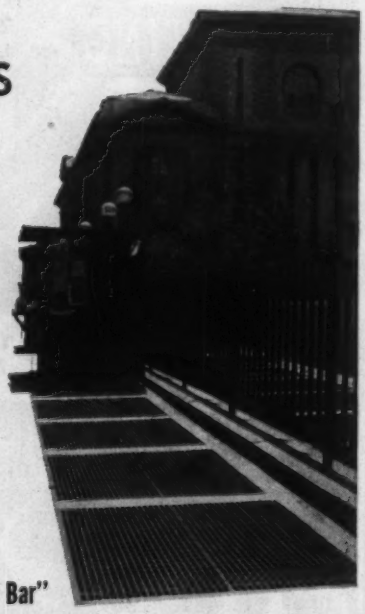

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▲ **Mo., Platte City**—BA 12/15—at Office Holman T. Ham, clk. of County Court of Platte Co., Platte County Court House, New Fairfax Bridge Proj., incl. 2,600 ft. vehicular bridge over Missouri River adjacent to present Fairfax Bridge between Platte Co., Mo. and Wyandotte Co. (near Kansas City), Kan., 4,900 ft. north approach hy. built above the elevation of high water from proposed bridge to Missouri State Rte. 45 and incl. 225 ft. hy. bridge over C. B. & Q. R. R. tracks; 1,200 ft. south approach hy., incl. 110 ft. exten. south end of present bridge, 2,300 ft. by-pass road under south ends of bridges; proj. will provide two addnl. traffic lanes for U. S. Rte. 69 and 169 from Seventh St. and Kindelberger Rd. in Wyandotte Co., near Kansas City, Kan. to Missouri Rte. 45 in Platte Co., Mo.; Contr. I substructure of river bridge will consist of 4 main piers of rein.-con. carried to foundation and seven south approach and five north approach span piers of rein. con. supported by timber piling; Contr. II substructure will have concrete roadway of 26 ft., roadway will be supported by cantilver thru trusses spanning three openings of 417, 475 and 517 ft. each flanked on each side by thru truss spanning 300 ft. openings, south structural approach will consist of deck girders spanning six openings, three 80 ft., two 60 ft., one 40 ft.; north structural approach will consist of deck girders spanning four openings, three 80 ft., one 40 ft.; Contr. III north approach hy.; Contr. IV, south approach hy. Plans deposit $10 Contr. I, $15 Contr. II, $20 Contr. III, $25 Contr. IV. Sverdrup & Parcel, Inc., 1118 Syndicate Trust Bldg., St. Louis, Mo., engr.; adv. ENR 12/1. CD 4/7.

† **Tex., Victoria**—DOROMITORIES—BA About 12/22—U. S. Eng., P. O. Box 1229, Galveston, airmen's dormitories, Foster Air Force Base, $500,000-$1,000,000. CD 8/4.

▲ **Mo., St. Louis**—SKATING RINK—BA About 6/1—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., Zone 3, 200 ft. diam. ice and roller skating rink, 1 story, 50x200 ft. recreational bldg. in Forest Park west of Kings highway to be known as Mark C. Steinberg Memorial. $1,000,000, Frederick W. Dunn, 1218 Olive St., Zone 3, archt. William C. E. Becker, 411 N. 7 St., Zone 1, struct. engr. Farris & Hamig, 1706 Olive St., Zone 3, mech. engr. CD 2/7.

BUILDINGS—BA

▲ **Neb., Lexington**—GENERATING PLANT—BA 12/20—The Central Nebraska Public Power & Irrigation Dist., at office of R. O. Canaday, secy., 1507 W. 2nd St., Hastings, Div. II, furnish, erect one 750,000 lb. per hour reheat steam generating unit; Div. III, furnish, erect two forced and two induced draft fans and magnetic couplings; Div. IV, furnish, erect automatic combustion control equip., gauge boards, boiler feed water level regulating equip. and boiler feed pump recirculating equip. for 100,000 KW steam electric generating plant and sub-station, south side Platte River. Total cost $17,000,000. Plans deposit $50. Sargent & Lundy, 140 S. Dearborn St., Chicago 3, Ill., engrs. CD 7/10/46, under Unclassified.

▲† **Tex., El Paso**—HOUSING—BA About 12/30—U. S. Eng., P. O. Box 1538, Albuquerque, N. M., 200 NCO family housing, Fort Bliss. ENG-29-005-56-49. CD 9/14/54.

BUILDINGS—LB & CA

Lovejoy Constr. Co., 1118 Mulberry St., Des Moines, Iowa, LB, $974,000 general contract PATIENTS HOUSING, State Hospital & Schools WOODWARD, IOWA. State Bd. Control, Capitol Bldg., Des Moines, Iowa. Bids Nov. 10.

▲ **Developments, Inc.**, Brotherhood Bldg., Kansas City, Kan. Owner Builds. $18,000,000. 1,000 HOMES in Tomahawk Hill Housing addn. between State and Parallel Sts., KANSAS CITY, KAN. J. D. Maultsby, Brotherhood Bldg., Kansas City, Kan., archt.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 14 California

BUILDINGS—BA

▲ **Calif., Ontario**—SCHOOLS—BA 12/15—Ontario Elementary School Dist., Ontario, 30,000 sq. ft., frame, stucco Elementary School Plant No. 14, $500,000, CD 10/25; 30,000 sq. ft. frame, stucco Elementary School Plant No. 13, $500,000, CD 9/14; 26,000 sq. ft., frame, stucco Elementary School Plant No. 15, $500,000. J. Dewey Harnish, 222 E. "B" St., Ontario, archt. CD 8/2.

Calif., Spadra—WARD—BA 12/21—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, three 56,000 sq. ft. concrete block masonry ward buildings, Pacific State Hospital. $800,000. Plans deposit $50.

HEAVY CONSTRUCTION—LB & CA

▲† **Morrison-Knudsen Co., Inc.**, 411 W. 5 St., Los Angeles, Calif., LB, $1,266,700, est. $1,247,797. earthwork, concrete lining, structures for Ralph's Mill area, Mohawk laterals, Gila Proj., Wellton-Mohawk Div., Spec. DC 4536, ARIZONA. Bureau Reclamation, Dpt. Interior, Yuma, Ariz. Bids Nov. 15. CD 10/12.

▲† **A. Teichert & Son**, Box 397, Baldwin Park, Calif., LB $2,059,896, est. $2,000,000 (6 bidders) imprvt. Upper Rio Hondo River from Valley to Rosemead Blvds., CIVENG-04-353-56-19, CALIFORNIA. U. S.

Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 22. CD 10/28.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Ukropina-Polich-Karl & John R. Ukropina, Box 105, San Gabriel, Calif., LB, **$3,188,422,** two 46 ft. roadbeds to provide 6-lane divided freeway for 3.4 mi. between 0.3 mi. south of Southern Ave. and Atlantic Blvd. incl. ramps, frontage roads, connections with 3 overcrossings South Gate, Los Angeles Co. Bids Nov 17. CD 10/20.

▲† **Winston Brothers Co.,** 1532 California St., Monrovia, Calif., LB, **$2,045,605** (4 bidders) Los Angeles River imprvs., Compton Blvd. to Atlantic Ave. in North Long Beach, CIVENG-04-353-56-68, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. CD 10/13/54.

▲ **Jerry Artukovich,** 11104 E. Rush St., El Monte, Calif., LB, **$1,089,935,** est. $1,000,000. Proj. 71, Slauson Ave. Storm Drain System, Sect. 3, LOS ANGELES, CALIF. Los Angeles Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Nov. 18. CD 10/27.

BUILDINGS—LB & CA

▲ **Wall, Bartram & Sanford,** Junction City, Ore., LB, **$1,689,742,** (8 bidders) general contract, 188,000 sq. ft. JUNIOR-SENIOR HIGH SCHOOL, YAKIMA, WASH. School District No. 7, Yakima, Wash. Bids Nov. 17, CD 11/1;

Central Heating & Plumbing Co., Yakima, Wash. LB, **$478,062,** (7 bidders) mechanical contract (Yakima, Wash.).

CANADA

HEAVY CONSTRUCTION—LB & CA

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,

McNamara Constr. Co. Ltd., 42 Industrial St., Toronto, Ont., LB, **$813,107** (5 bidders) Contr. 55-249, grading, culverts, gran. base 8.22 mi. secondary road from Wuirke Lake southerly, Blind River. Bids Nov. 16. CD 10/27.

▲ **Dominion Bridge Co. Ltd.,** Lachine, Que., CA, Total est. **$6,500,000.** steel work and supply for extending structural brackets and laying grid flooring for new roadway on down stream side of Victoria Bridge, MONTREAL, QUE. Canadian National Rys., A. V. Johnston, ch. engr., 360 McGill St., Montreal, Que. Awarded Nov. 14. CD 2/3.

BUILDINGS—LB & CA

▲ **Burns & Dutton Concrete & Constr. Ltd.,** 9004 125 Ave., Edmonton, Alta., CA, Total est. **$7,000,000.** grading and foundations for 80,000 sq. ft. PIPE MILL, EDMONTON, ALTA. Alberta Phoenix Tube & Pipe Ltd., c/o Canadian Bechtel Ltd., 44 King St. W., Toronto, Ont. Awarded Nov. 16. CD 11/14.

Christensen & MacDonald, 612 Tegler Bldg., Edmonton, Alta., CA, **$702,279.** SEMINARY BLDG., ST. ALBERT, ALTA. St. Joseph's Seminary, St. Albert, Alta. Blais & English, 9642 Jasper Ave., Edmonton, Alta., archts. Awarded Nov. 10.

▲ **Swift Constr. Co.,** P. O. Box 89, Ste. Genevieve, Montreal, Que. Owner Builds, Over **$3,000,000** HOUSING, incl. 300-units, Ste. Genevieve, MONTREAL, QUE.

ALASKA

HEAVY CONSTRUCTION—BA

▲† **Alaska, Naknek**—PAVING—BA 12/16—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., 42,300 sq. yd. tar rubber surf. 28,000 sq. yd. b. conc. paving taxiway and apron parking, 8,110 sq. ft. concrete addn. to ready rocket bldg., etc. at King Salmon Airport, Inv. 56-7, $1,000,000. CD 8/22.

HEAVY CONSTRUCTION—LB & CA

▲† **S. S. Mullen, Inc.,** 621 9 Ave. N., Seattle, Wash. LB **$1,347,000,** est. $1,443,293. warehouse addn., flight simulator bldg., rocket storage bldg., Ladd Air Force Base, Inv. 56-4, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Nov. 17. CD 10/28.

† **S. S. Mullen, Inc.,** 621 9 Ave. N., Seattle, Wash. LB **$821,000,** est. $746,075, (10 bidders) water lines to serve deluge sprinklers in maintenance hangers at Ladd and Elmendorf Air Force Bases, Inv. 56-21, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Nov. 16. CD 10/28.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

Nicaragua—TRANSMISSION LINES, etc—BA 2/3—The Kuljian Corp., engrs., 1200 N. Broad St., Phila. 21, Pa., U.S.A., 110 mi. 69 kv transmission lines, 57 mi. 13.2 kv transmission lines, 6 receiving substations totaling 22,000 KVA, 1 sending sub-station totaling 15,000 KVA and distr. sys. for 15 towns for the National Power System for Government of Nicaragua, Empresa Nacional de Luz y Puerza, Managua, Nicaragua. Extended date. CD 8/19.

BUILDINGS—LB & CA

▲ **Foley Brothers Inc.,** Vermilyea St., Pleasantville, N. Y., U. S. A. CA **$2,000,000.** pier and port work for COPPER MINING, Toquepala Proj., at Ilo, PERU. Southern Peru Copper Corp. (American Smelting & Refining Co., Phelps-Dodge, Newmont Mining Corp., Cerro de Pasco Corp.), 120 Broadway, New York, N. Y. U. S. A. CD 8/17.

(Proposal Advertisements see pp. 83 to 86)

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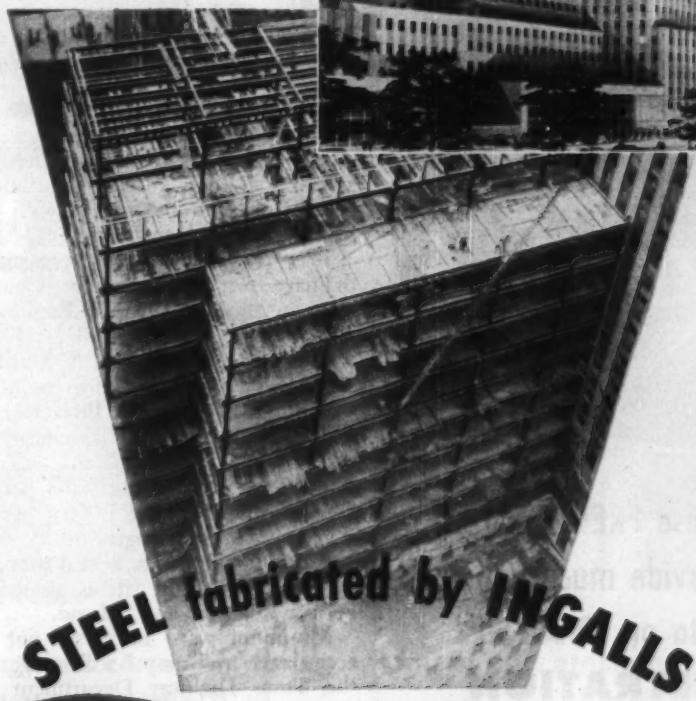
Harrison & Abramovitz, Architect



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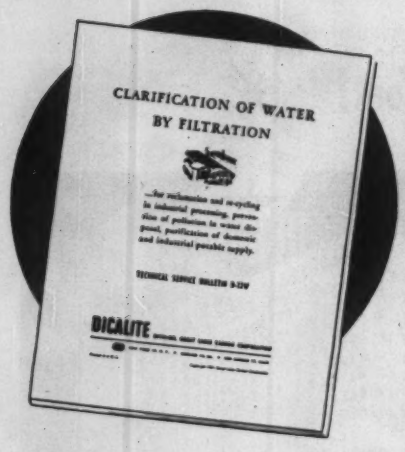

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Unit Prices

First Texas Turnpike Grading and Bridge

A 10.461-mile grading and drainage project in Tarrant County and the Trinity River Bridge, with approaches and Beckly Avenue Grade Separation 0.722 miles long, are the first two sections of the estimated $34.7 million Turnpike between Dallas and Fort Worth, Texas. The overall project includes 20 to 22 sections and is expected to be completed by July 1957.

Contracts went to Spencer Construction Co., Carrollton, for the $1,680,062 low bid on the grading and drainage project and to Austin Bridge & Austin Road Co., Dallas, for their low bid, $1,856,822, on Trinity Bridge and Beckly Avenue Grade Separation. There were 13 and eight bidders respectively. The Turnpike Authority jobs require pre-qualification with the Texas Highway Department.

Plans for the initial grading and drainage project in Tarrant County were prepared by Turnpike Engineers, Arlington, Texas. Mitchell & Hund, San Antonio, Texas and O. R. McElva, Dallas, Texas, are consulting engineers for Trinity River Bridge Project.

Turnpike Authority specifications for Cl A concrete require five sacks of cement and seven gal of water per cu yd, and that it test at 3,000# per sq in. compressive strength in 28 days and at 500# per sq in. flexual strength in seven days. The site is accessible both by highway and railroad.

Minimum wage rates, set out in accordance to Group I scale wages of the Texas Highway Department include $1.50 per hour for skilled labor, $1.25 for semi skilled and $1.00 for common labor. Special rates for skilled labor in Dallas County were $1.35 for asphalt plant, mixer operator, $1.50 for dozer and dragline operators, and $1.65 for carpenters, journeymen and operators of cranes, ¾ yd and over.

In addition to the highway, the Authority will subsequently construct service and concession buildings along the turnpike. These bids will probably be opened in the Spring of 1956.

Bidders included:

Grading and Drainage

1C	Spencer Constr. Co., Carrollton	$1,680,062
2	W. R. Aldrich Co.	1,780,983
13	Markham & Brown, McMullin & Larson	3,016,950

Bids: 9-14-55 Items	Unit	Quantity	Unit Prices 1C	2
ROW, prep	sta	582	$135.00	$20.00
Clear & grub	ac	210	175.00	100.00
Excav, uncl, road	cy	2,613,500	0.298	0.26
channel	cy	85,500	0.298	0.40
Road grader work	sta	176	24.00	10.00
Scraper work	hr	102	12.00	10.00
Overhaul	yu	2,292,800	0.04	0.02
Topsoil, salv	cy	83,000	0.298	0.30
salv & place	sy	746,300	0.04	0.10
Sprinkling	mg	57,000	0.50	1.25
Rolling, 203	hr	220	5.00	5.00
203 A	hr	17,500	1.00	6.50
203 B	hr	8,000	1.00	3.50
203 C	hr	12,500	1.00	8.50
Base, flexible	cy	17,800	1.55	2.50
Prime coat, MC-1	gal	8,850	0.16	0.18
Asphalt, OA-175	gal	14,800	0.16	0.18
Aggr, type A, gr 5	cy	500	6.00	10.00
Farm fence, woven wire	lf	153,000	0.37	0.35
gate, 10', sing vehic	ea	4	66.00	75.00
20', doub vehic	ea	5	132.00	200.00
pull posts	ea	335	8.25	3.00
corner posts	ea	260	8.25	3.00
end posts	ea	110	5.50	3.00
Fence, chain link	lf	7,000	0.97	3.00
gate, 4', pedest	ea	4	26.40	50.00
20', doub vehic	ea	4	132.00	300.00
pull posts	ea	3	11.00	6.00
corner posts	ea	21	11.00	6.00
end posts	ea	13	8.25	6.00
Floodgates, type A	ea	2	100.00	85.00
type B	ea	1	70.00	75.00
Fence, priv, term inst	ea	150	11.00	10.00
Chan cross, type I	ea	26	27.50	40.00
type II	ea	9	27.50	60.00
Barricades, permanent	lf	100	2.42	10.00
Gages, settlement	ea	6	250.00	50.00
Concrete, cl A	cy	2,158	42.00	45.00
Steel, reinf	lb	284,000	0.106	0.119
Pipe, SCR, 15"	lf	286	3.15	2.75
18"	lf	5,374	3.60	3.50
24"	lf	1,992	4.90	4.50
27"	lf	60	5.50	5.25
30"	lf	1,050	6.29	6.00
36"	lf	1,634	7.40	7.50
42"	lf	3,758	8.40	9.00
48"	lf	1,226	10.60	11.00
54"	lf	178	12.70	12.50
60"	lf	464	16.00	15.50
72"	lf	580	23.00	24.00
84"	lf	474	31.90	31.00
ESRC, 24"	lf	132	6.00	5.50
30"	lf	266	6.80	6.50
42"	lf	244	9.15	10.00
CGM, 18"	lf	658	4.00	5.00
24"	lf	116	6.00	6.75
30"	lf	284	6.80	7.25
End sect, CGM, 18"	ea	5	30.00	50.00
Riprap, conc, cl B	cy	1,700	28.00	35.00
Pipe underdr, 6"	lf	11,700	2.50	1.25
Nitr'n plant fd, avail	lb	6,610	0.33	0.75
Sodding, block	sy	14,000	1.10	0.75
mulch	cy	53,500	1.18	1.00
Manholes, type A	ea	12	500.00	400.00
Inlets, compl, type D	ea	88	135.00	140.00

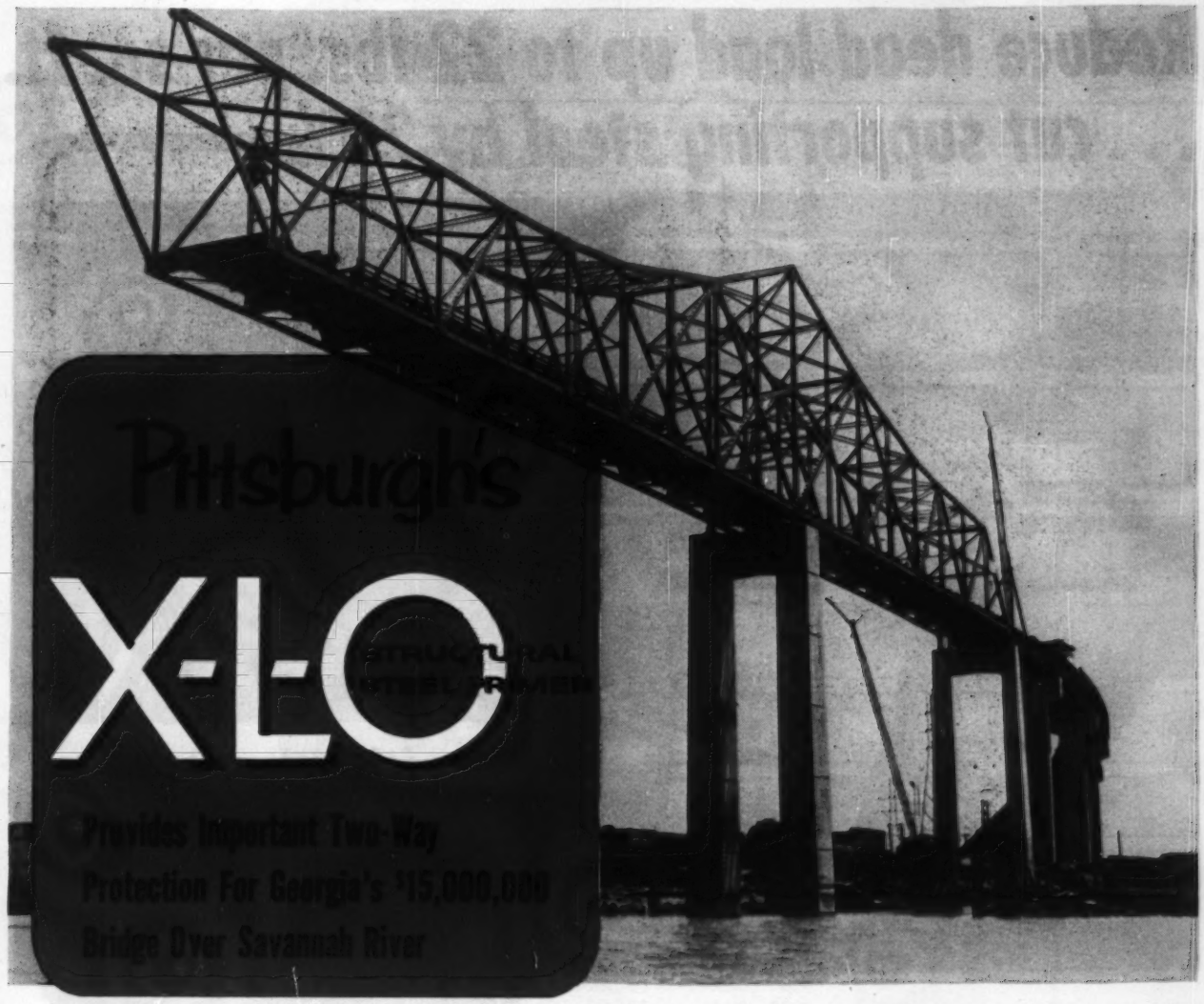
Time allowed: 370 calendar days
Liquidated damages: $500.00 per day

Trinity River Bridge and Approaches, Beckly Avenue Grade Separation

1C	Austin Bridge Co. & Austin Road Co	$1,856,822
2	Whittle Contr. & McKenzie Constr. Co	1,937,509
8	Brown & Root, Inc	2,173,812

Bids: 9-13-55 Items:	Unit	Quantity	Unit Prices 1C	2
Excav, uncl, road	cy	13,138	$0.31	$0.30
Borrow, uncl	cy	137,500	0.89	0.60
Excav, uncl, struct	cy	416	4.00	4.60
Topsoil, salv	cy	1,610	0.35	0.25
salv & place	sy	14,280	0.23	0.05
Sprinkling	mg	2,462	1.25	1.00
Rolling, 203 A	hr	1,194	6.45	5.00
203 B	hr	31	4.50	5.00
203 C	hr	597	7.00	5.00
Roadbed treatment	cy	7,550	1.48	1.60
Base, flexible	cy	775	1.76	2.50
Prime coat	gal	150	0.28	0.25
Tack coat	gal	45	0.28	0.25
Asphalt	t	3.5	30.00	30.00
Aggregate, type C	t	70	10.00	6.00
Pave, conc, cl A	cy	231	19.00	20.00
Conc, cl A, superstruct	cy	5,943	32.50	35.00
substruct	cy	4,047	32.50	45.00
Steel, reinf	lb	1,556,760	0.1085	0.105
struct, I-Beam spans	lb	5,312,350	0.32	0.123
pl gird spans	lb	1,038,500	0.15	0.152
Drain shaft, dia 30"	lf	1,552	11.00	15.00
36"	lf	16,194	14.10	20.00
48"	lf	770	22.50	40.00
H-piles, stl, 12" x53#	lf	3,736	5.50	5.00
Railing, type A	lf	4,812	7.10	6.00
Riprap, conc, cl B	cy	832	27.50	31.00
Sodding, mulch	cy	253	1.25	1.50
Road, aband, oblit	sta	10.5	10.00	10.00
Old conc pave, remove	sy	117	1.50	1.00
Barricade, permanent	lf	100	3.59	5.00
Gages, settlement	ea	5	25.00	50.00

Time allowed: 420 calendar days
Liquidated damages: $500.00 per day



1. Safeguards steel shapes against corrosion during shipment and erection

2. Makes an excellent foundation coat for field painting

ONE OF THE South's most recent road-building improvements is the new $15-million Eugene Talmadge Bridge across the Savannah River at Savannah, Georgia.

The 710-foot main span of this structure consists of two cantilevered trusses supporting a central truss section. Anchor spans for the main crossing cantilevers are made up of 275-foot trusses. Fifty girders, ranging from 50 to 140 feet in length, make up the approaches to the main span. The American Bridge Division, United States Steel Company, is the contractor for the steel work.

By painting girders and trusses with Pittsburgh's X-L-O Structural Steel Primer, these shapes were safeguarded against corrosion during shipment and erection. This remarkable finish is derived from linseed oil combined with red lead and oxide pigments. Its unexcelled wetting properties insure uniform protection even on surface irregularities caused by mill scale. Speedy drying permits fabricated parts to be shipped to the job site within 24 hours after priming.

X-L-O reduces risk of surface failures that necessitate premature cleaning and painting. It serves, too, as an excellent foundation for final coats. Pittsburgh's IRONHIDE and METALHIDE in a suitable range of colors are available for field painting.

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DESCRIPTION

METAL THICKNESS: *18, 20, or 22-Gauge Cop-R-Loy Steel sheets.*

FINISH: *Zinc chromate iron oxide primer coat baked on after fabrication.*

LENGTHS: *up to and including 22 feet, 6 inches.*

WIDTH: *18 inches.*

PANEL WEIGHT: *50 to 67 lbs., depending upon size of panel.*

RIB DEPTHS: *1½", 1¾", 2", 2½", spaced 6" on centers.*

DEAD WEIGHT: *8 to 10 lbs. per sq. ft. when insulated and with built-up roofing.*

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Nine-Months Report: It Looks Good

	Sales (in thousands)		Profits (in thousands)		Profit Margin %	
	1955	1954	1955	1954	1955	1954
Cement						
Alpha Portland	$22,944	$21,761	$3,740	$3,163	16.3	14.5
General Portland	28,270	24,819	5,906	5,108	20.9	20.6
Lehigh Portland	52,667	43,848	8,027	5,471	15.2	12.5
Lone Star	69,039	63,478	10,768	9,438	15.6	14.9
Penn-Dixie	32,022	22,938	5,194	3,770	16.2	16.4
Equipment						
Allis-Chalmers	396,545	376,565	18,147	19,323	4.6	5.1
Blaw-Knox	72,138	82,373	1,513	3,141	2.1	3.8
Bucyrus-Erie	51,596	52,725	4,378	3,704	8.5	7.0
Caterpillar	379,124	297,570	24,482	19,583	6.5	6.6
Cooper-Bessemer	27,832	23,486	1,233	165	4.4	0.7
Gardner-Denver	33,906	22,833	3,413	1,960	10.1	8.6
Link-Belt	91,400	84,980	5,144	4,055	5.6	4.8
Thew Shovel	23,907	17,415	679	241	2.8	1.4
Wallboard & Roofing						
Johns-Manville	207,892	184,613	16,441	12,712	7.9	6.9
Nat'l Gypsum	110,311	93,543	12,187	9,491	11.0	10.1
U. S. Gypsum	192,421	162,481	30,133	24,158	15.7	14.9
Miscellaneous						
Amer. Radiator	250,511	222,437	13,637	12,273	5.4	5.5
Crane	239,479	218,398	6,460	4,988	2.7	2.3
Minn.-Honeywell	172,223	165,658	11,537	10,580	6.7	6.4
National Lead	390,004	310,817	34,208	25,776	8.8	8.3
Otis Elevator	85,118	79,089	8,089	6,689	9.5	8.5
Pitts. Plate Glass	428,950	309,278	45,377	27,530	10.6	8.9
Weyerhaeuser	244,263	191,769	39,122	23,767	16.0	12.4

Suppliers Keep on Doing Well

By this time, most of the major companies supplying the construction industry have issued reports on operations for the first nine months. A sampling is shown in the table (above). As might be expected during a period when construction has been hitting record highs, sales and profits almost without exception are above the corresponding period last year. Sometimes these increases are quite sizable.

A more acid test is to compare profit margins—the percentage of the sales dollar which suppliers were able to turn into net profit. By this measure, the picture isn't quite so unanimous. A few of the equipment manufacturers did not do as well as in the same 1954 period. There were a couple of minor exceptions in the other supplier groups.

But if you will compare profit margins during the first half (ENR Aug. 11, p. 156) with profit margins for the first three quarters, you can see that the situation is improving for most companies.

• **Cement industry**—Among the cement companies there were some handsome increases—even an increase of a few tenths of one percent indicates a marked improvement in efficiency during the third quarter. Only one cement company in this table had a decline, and that was slight.

• **Equipment makers**—Among the equipment manufacturers, nearly all did better on profit margins between the first half and the first nine months. Caterpillar's margin was about 6.5% compared with 6.1% for the first half, showing that its third quarter was quite prosperous. Blaw-Knox's margin improved slightly, indicating consistently improving results from that company's plant relocation and reorganization program. Though sales of Bucyrus-Erie were still slightly below last year, the company's profit margin was substantially higher than last year. And this margin also gained during the third quarter.

• **Others**—In the wallboard and roofing field, profit margins generally improved. Among companies in the "miscellaneous" group, margins mostly declined. One exception: Crane, an important producer of valves and plumbing.

More Lumber Sales

Standardization held key to better housing market

Lumber's share of the home-materials market could be greatly increased if lumber processors catered more to housing as a major buyer of lumber, P. S. Knox, president of the Prefabricated Home Manufacturers Institute, told directors of the National Lumber Manufacturers Assn. at their annual meeting in Washington recently.

Knox said that lumber's greatest weakness in competing with other materials is its "unswerving allegiance to the old American lumberyard standards, with their multiplicity of sizes, lengths, grades and species."

• **More get-togethers**—Knox noted that while a movement to simplify and standardize dimensions has been under way for years, it has been going too slowly. He suggested that lumbermen and homebuilders should get together more often to eliminate waste and cut overhead costs.

"In our prefab operations we limit the number of basic designs that we produce, and reduce the variety and sizes of materials used in producing these models, so that we can simplify our procurement and inventory problems," said Knox.

He declared that prefabbers "long since found out that all studs don't have to be 2 x 4-16. . . .

• **Prefabbers gain**—Knox declared that the prefab industry this year will almost double its 1954 consumption of lumber and wood products. He said that 1954 consumption by prefabbers included more than 400,000,000 bd ft of lumber, over 250,000,000 ft of plywood, more than 78,000,000 bd ft of flooring, 847,000 doors, and over 52,000,000 ft of wood trim.

(B&F continued on page 76)

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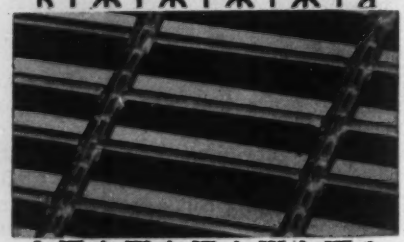

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Structural Steel Shortage Will End By Mid-1956, AISC Head Predicts

Shipments of fabricated structural steel are expected to increase in 1956. That means fabricators should be able to step up their deliveries of customers' orders as the mills increase their own output.

That is what Earle V. Grover, president of the American Institute of Steel Construction, told members of the association at their annual convention in Boca Raton, Fla., this week.

Grover estimated that 2,700,000 tons of fabricated steel will be shipped by the industry this year—down about 8% from last year. Pointing to expansion programs now under way by the steel mills, Grover predicted an early return to normal deliveries and an increase in fabricated structural production.

• **End of shortage**—"Although our industry is still on short rations so far as steel is concerned, the end of our enforced starvation period is in sight," said Grover. "Extensive construction programs are now nearing completion by the mills which have been our principal sources of supply. From now on we should be benefiting by a gradual increase in supply of these sections. And by the middle of 1956, production of structural shapes is due to be substantially above what it has ever been in the past."

Grover said that by year end the order backlog would be about 1,800,000 tons, 50% above a year ago. Bookings of new business will be about 3,400,000 tons, about 45% above last year.

• **Dissent**—Other reports from the steel industry differ somewhat from Grover's predictions. Many observers of the steel industry believe that all the major users of steel will be asking for more next year—including the auto industry, machinery producers, and freight car builders, as well as construction. If this is so, they say, the makers of fabricated structurals still may not get all the ingots they need, even though finishing capacity is increased.

According to one estimate, demand for steel by the construction industry—including structurals, reinforcing bars, and other items—will pick up about 16%. A good many people believe that the structural steel market will get even tighter, at least during the first quarter of next year.

One reason why the structural and reinforcing-steel market is so busy is the good weather so far, which has enabled construction to keep going at full speed. So winter building is probably now running at its highest level in history.

• **Price boosts**—A symptom of the increasing tightness of all types of steel is the increasing tendency of steel makers to put on extra "processing" charges. Jones & Laughlin Steel Corp., for instance, put an extra charge on structurals last week. There is considerable talk in the industry of another general round of price increases. And "conversion deals" are coming back again: The process by which steel-hungry manufacturers buy ingots at premium prices from one mill and have them finished at another.

Most steel producers are booked up through the first quarter. They state they could fill up their schedules right through the first half of 1956 if they wanted to accept every order they get.

Wholesale Market

'Frisco gets plan to move its crowded food center

An $11.8-million plan for moving San Francisco's congested wholesale food distribution facilities to a 200-acre site near Hunters Point has just been proposed with the unveiling of a Department of Agriculture model for a "wholesale food center."

Nucleus of the plan, and prod for the city's request for the U.S.D.A study, is a $3-million produce center—only section of the master plan that seems slated for construction in the foreseeable future.

Harry G. Clowes of the Agricultural Marketing Service, who presented the program, explained that the overall plan was offered because the U.S.D.A study team determined early in its six weeks' survey that there were serious inadequacies in all phases of the city's existing wholesale food distribution setup.

The complete plan is economically feasible, he declared. Savings which would result from increased efficiency in a new market would amount to more than $3.7 million annually, some $1.7 million on fruit and vegetable handling alone.

• **Tied with redevelopment**—Coupled with the market project, although less

clearly defined, is a plan for redeveloping the present 26-block produce section, located close to some of San Francisco's most valuable property. The city is seeking $2 million from state tideland oil funds to create a state park and historical monument in the Ferry Building area, a park which it is hoped will upgrade the district and lead to new construction of apartment and office buildings.

Pressure has been growing over a period of years to move the produce market out of its present quarters, crowded into narrow streets between the city's financial district and the waterfront.

Now, with both the downtown and South Basin market sites declared redevelopment areas, with private capital reportedly available, and with an estimated half of the wholesalers themselves joining with civil officials in favor of the move, proponents of the plan are optimistic that construction may start in about two years. Minimum time for moving the project through redevelopment procedure is estimated at 18 months.

• **Plan envisions 38 structures**—The U.S.D.A. plan for the wholesale center envisions 38 separate buildings, each with direct rail connections. Main streets would be 150 ft wide to allow adequate space for truck unloading as well as through traffic. About 1,500 parking spaces would be provided.

The produce section would include six buildings 60 ft deep, with space for 70 22½-ft wide units. Buildings would be steel frame, with foundations and footings of concrete. Partitions between stores would be semi-permanent to allow for modifications of store sizes.

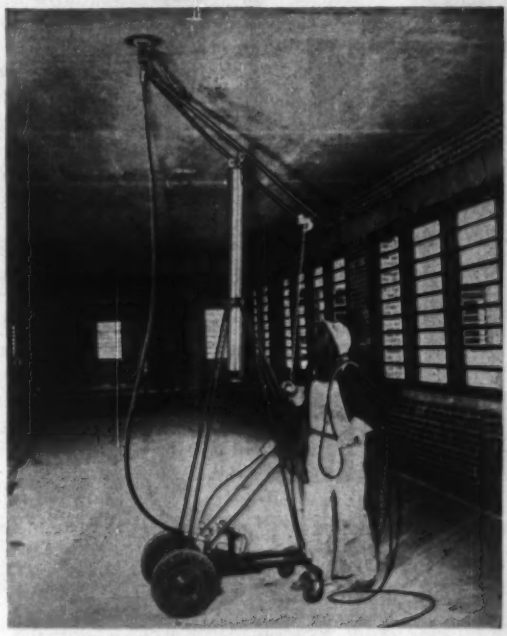
The report allotted 33 acres for the produce terminal. Another 80 acres would be set aside for meat, dairy and dry grocery products. The remaining acreage would provide sites for allied industries.

Land acquisition costs—high in crowded San Francisco—would come to some $6.1 million for the 113 acres needed for the food center development. Building costs were estimated at $5.7 million.

The report listed several major defects in the city's food handling facilities, citing the produce district as the worst offender.

• **Present setup inefficient**—Most critical is the traffic problem. The hundreds of trucks that move into the narrow streets of the area cause traffic tie-ups of long duration, a situation which not only is costly to food handlers but also creates a formidable fire protection problem.

RUBBING CEILINGS?



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. . . Business and Finance

Contractor Failures Could Reach Record High This Year

In spite of a record construction year, contractor failures in 1955 may hit a new record. Failures among contractors set a new high for the month of October, according to the figures kept by Dun & Bradstreet, which go back to 1934. There were 136 failures, with liabilities of $8.7 million during October. That brought the 10-month total to 1,135 failures and $66 million in liabilities.

Average liability per failure in October rose to $64,100, compared with $37,300 in September and $43,400 a year ago. As usual, building subcontractors made up most of the failures. There were 88 in this category, bringing the 10-month total to a new postwar high of 712, 11% above 1954.

There is a sharper increase in failures of general contractors doing other than building. While the number is comparatively small, seven in October and 62 for the first 10 months, failures are up 38% over last year.

By contrast, general building contractors are doing a little better this year. There's a 4% dip in failures for the first 10 months. But the 41 failures in this group during October was somewhat higher than September and in October 1954.

Federal-Aid Program Proposed To Help Factory Construction

There is a severe shortage of modern one-story plant space throughout the U. S. This type of space would attract manufacturers, who are faced with severe pressure to cut their production costs. If they could get this type of space in towns now faced with unemployment problems, the unemployment situation would soon be cured.

That's the thesis of William Batt, Jr., executive secretary of the Toledo Industrial Development Council. He told a joint Congressional committee recently that the greatest single aid the federal government could provide for spot unemployment would be to help such communities build modern plants to attract industry.

Batt described how the Toledo Council created 6,000 jobs in 18 months by setting up an industrial district in Toledo, with an "ever-available plant" program. He said that about $10 million in federal loans and loan guarantees could stimulate private investment of $35 million in new plants. The federal funds would be repaid and loaned out again on a revovling-fund basis.

Brake on Borrowing

Federal Reserve's boost in discount rate hits municipal bond market

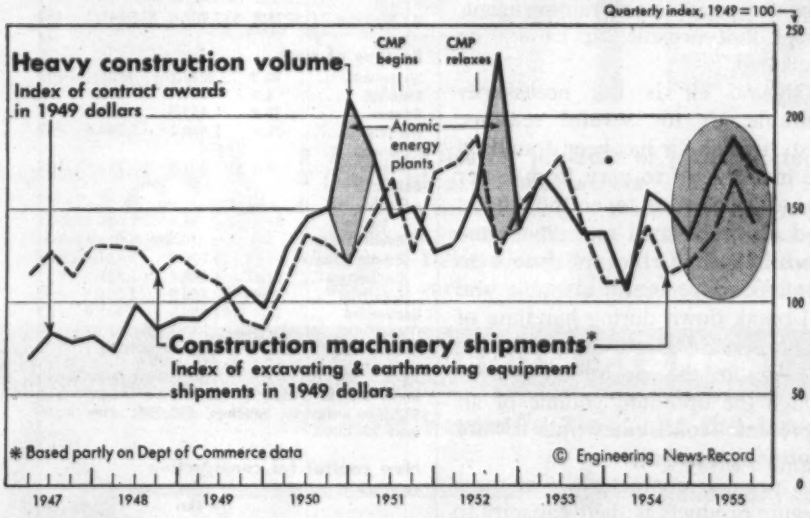
The Federal Reserve Banks' recent boost in the discount rate they charge member banks to borrow money is having its effect on the municipal bond market, where most public works of state and local governments are financed. That action tightened up the cost of money all along the line. It served notice that the Fed is not going to ease up on money as long as we have a roaring boom. Indications are that money will get more expensive to borrow, for the next few weeks at least.

• **Tip-off**—Here are some of the indications: The only two sizeable issues to be sold last week—$50 million of New York City school and hospital bonds, and the $14.5-million Georgia Rural Roads Authority offering—had soggy going. Early this week, dealers still had substantial unsold blocks of these bonds, on their hands.

Prices of outstanding bonds already on the market have been declining since the discount rate boost. That's an important tipoff to interest rates on future issues, which will have to compete with bonds already on the market.

The Blue List, an inventory of bonds advertised for sale by dealers, reached a record high last week. And finally, there is quite a large volume of bonds to be financed this month, notably the $50-million New York State Thruway issue of general-obligation bonds on Dec. 7. The $100-million Connecticut Expressway issue also is coming up for sale.

• **Unusual**—The Georgia issue is an unusual setup for financing highways, though it's similar to building authorities already established in several states. It is part of a number of offerings that will be sold to finance farm-to-market roads. The bonds are sold by a separate authority, which will hold title to the roads. The State Highway Department will lease the roads for 50 years, repairing and maintaining them. It will pay rentals to take care of interest and bond retirement. In effect, the state will be paying for needed roads over a 50-year period, instead of on a "pay-as-you-go" basis.



Equipment Shipments Hit New Record

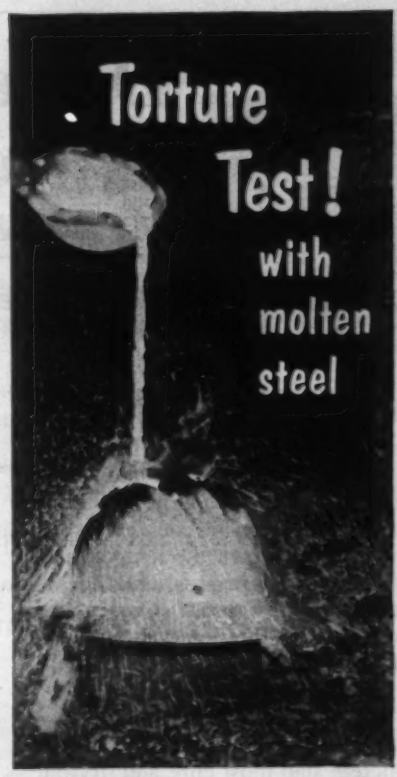
Equipment makers set a new high in shipments of excavating and earthmoving equipment during the third quarter, (chart, above) according to the figures just published by the Department of Commerce.

Though down seasonally from the second quarter, ENR's Equipment Shipments Index—which adjusts for changes in dollar purchasing power—went to 143, the highest figure on record.

Shipments topped the same quarter of last year by 23%. They were 3% above the previous third-quarter high set in 1953. Furthermore, this was the fourth consecutive quarter in which shipments topped the corresponding period of the previous year.

Tracklaying tractor shipments totaled $77 million in the third quarter. Wheel-type off-highway tractors totaled $18.4 million. Road construction and maintenance machinery shipments were valued at $37.5 million.

Machinery for mounting on tractors totaled $22.5 million.



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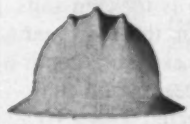

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***Curing Air Entrained Concrete**
***Organic Air in Concrete**

AIR ENTRAINMENT in concrete, as is universally known, provides improved durability and resistance to freezing and thawing. However, air entrainment itself is not an automatic solution to all concrete problems. For example, the temperature at which the concrete is placed affects the final result. Even more important is the interval between finishing and the time the concrete is salted for de-icing purposes.

Concrete must be allowed to mature. Or, it may be said that the concrete slab must cure and dry out to the extent that excess water is no longer available as freezable water. In cases in which air entrained concrete showed a decided lack of durability, freezing weather had set in within six weeks of the time the concrete was finished, and salts had been applied shortly afterwards. When concrete is placed after October, a good rule of thumb is to keep salts off your highway for the first year.

To simulate field exposure conditions, laboratory freezing and thawing tests were conducted with a 10% $CaCl_2$ solution in the Dewey and Almy Cement and Concrete Research Laboratories at Cambridge. A 24-hour cycle of freezing and thawing is used in the Dewey and Almy Laboratories, and measurements were taken at 20, 40, and 60 cycles.

A number of air entrained concrete specimens were cured moist for 28 days and immediately subjected to freezing and thawing. Companion specimens were cured moist for 14 days, and then dried out for 14 days before being subjected to the freezing and thawing cycles. At 40 cycles, the moist-cured showed 17% loss of weight, and the dry-cured only 2% loss. At 60 cycles, the moist-cured showed 31% loss, while the dry-cured showed but 3% loss.

* * * * * * *

One of our field engineers just returned from a trip through the Mid-west reported that he had encountered another case of "organic air". By definition, organic air is a system of air voids in concrete brought about by the presence of certain organic substances in sand. These substances possess foaming properties of their own and will entrain air in concrete in much the same way as any air entraining agent, except that organic air cannot be controlled.

Organic air is not necessarily desirable air for several reasons. First, organic air has been found by one investigator to vary from 5 per cent to 23 per cent, even though the sand was reclaimed from the same deposit. Second, the air system so entrained is generally unstable and will break down during handling of the concrete. Third, poor spacing and size of the air bubbles—even though the optimum volume of air is present—contributes little toward improving durability.

A peculiar characteristic of these organic products is their capacity to remain undiscovered when the sand is evaluated by standard test procedures. Such sands—if otherwise suitable—normally will not reveal their organic constituents in the sodium hydroxide color test. In most cases, the use of minute quantities of tributol phosphate or isopropyl alcohol as a defoaming agent will eliminate organic air.

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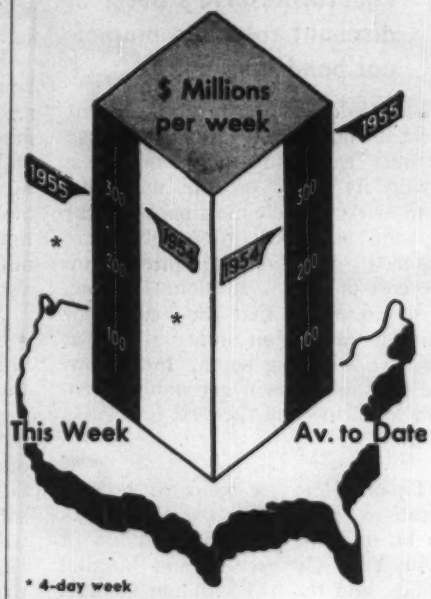
As reported to ENR
(In millions of dollars)



* 4-day week

Amount of contracts let

(millions of dollars)

By Ownership	This Week	Cumulative 48 wks 1955	1954	% chge
Federal	$14.5	$1,544.2	$1,193.8	+29
State and municipal	91.1	4,839.4	4,585.2	+6
Total public	105.6	6,383.6	5,779.0	+10
Total private	173.2	10,924.0	7,562.3	+44
U. S. Total	$278.8	$17,307.6	$13,341.3	+30
By type of work				
Waterworks	$4.7	$247.7	$222.8	+11
Sewerage	4.5	356.1	363.0	−2
Bridges	10.6	453.8	468.8	−3
Highways	29.9	1,969.1	1,760.8	+12
Earthwork, waterways	8.2	501.3	291.4	+72
Buildings:				
Public, excl. housing	39.9	1,588.8	1,625.8	−2
Public housg.	0.4	240.2	243.4	−1
Private housg.	97.8	5,796.4	3,945.4	+47
Commercial	21.2	1,569.7	1,328.5	+18
Industrial	47.2	2,686.0	1,763.4	+52
Unclassified	14.4	1,896.5	1,331.0	+42
U. S. Total	$278.8	$17,307.6	$13,341.3	+30

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)

	This Week	Cumulative 47 wks 1955	% Chge '54-'55
Corporate securities	$104.4	$3,335.1	+33
State and municipal:			
All except housing	198.1	4,387.4	−13
Housing	....	93.0	+2
Federal loans	1.6	122.3	+12
Federal aid	....	853.5	+27
Total nonfederal	304.0	8,791.3	+5
Federal appropriations:			
In U. S.	....	3,379.7	+63
Outside U. S.	....	84.6	+155
Total new capital	$304.0	$12,255.6	+17

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	11/24	672.65	323.34	141.01
	11/3†	673.20	323.61	141.13
Building cost	11/24	478.75	258.80	136.09
	11/3†	479.30	259.10	136.23
Volume	Oct	628	255	182
	Sept	576	234	166

† Official Indexes for Nov.

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Faster Erection . . . Positive Holding . . . Easier Stripping

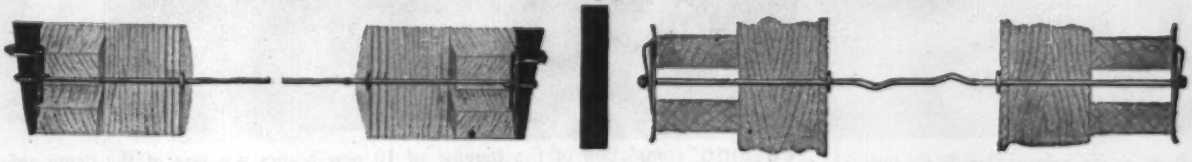
- Greater tie strength for heavy construction
- Fewer ties per sq. ft. of form area. LOWER MATERIAL and LABOR COSTS
- Positive breakbacks
- Permanent, reuseable equipment
- RENTED . . . SOLD

SPIROLOC Cone Nut Assembly

The most positive internal spreader and form tie

TWISTYES | SNAP TIES

Positive Spreader Ties for all types of Concrete Construction



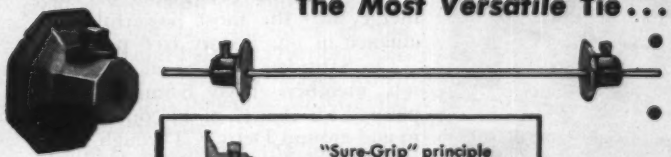
Combination wedge and bearing plate . . . easy application . . . won't twist or fall off —ample take-up.

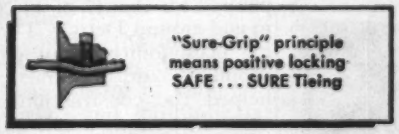
- Low cost ties for job-built or prefabricated forms
- Used with or without walers
- Accurate breakback . . . minimum plug required
- Choice of Spreader Washer . . . 7/8" flat is standard
- Rugged Twistye and Snap Tie Clamps have extra bearing surface . . . additional safety factor

Curved ends speed installation and stripping . . . long slope wedge for ample take-up. Extra nail holes permit nailing clamp in any position.

FORM CLAMPS

The *Most Versatile* Tie . . . At the Lowest Cost





- 2 Form clamps and a mild steel rod make a tie to handle any condition
- Wide clamp base gives more bearing on waler . . . won't "bite" at maximum loads
- Notched base permits nailing to waler

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HOUSTON, TEXAS, 2314 Preston Ave. • SAN LEANDRO, CALIF., 2051-9 Williams St.
LOS ANGELES, CALIF., 5855 South Western Ave. • ATLANTA, GA., 1401 Howell Mill Rd.
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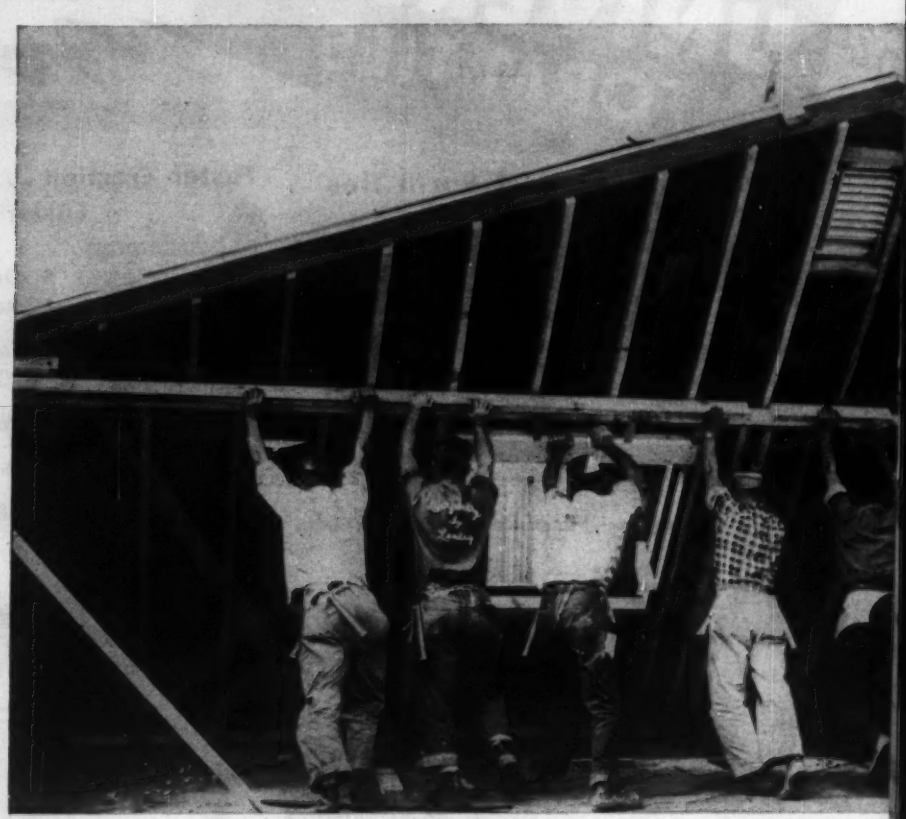
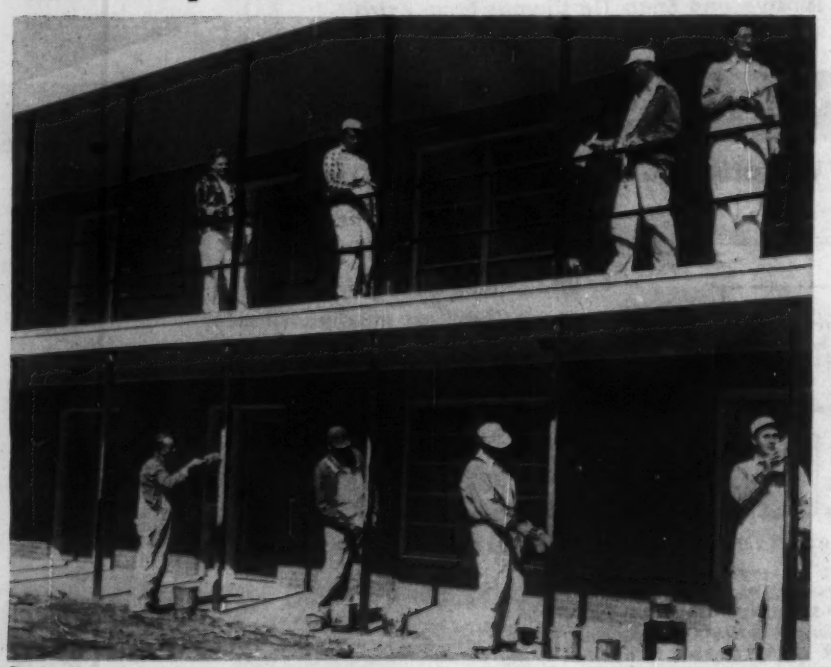
In Detroit's big campaign for charity, the building trades raised money with their skills and found . . .



Pushing completion of the framing of 10 new homes was one of the many union efforts

A Key to Better Labor Relations



Painting was another form of teamwork. Contractors matched wages dollar-for-dollar.

The Detroit building trades have demonstrated again labor's growing interest and participation in community activities—an interest which will officially get a tremendous boost this week when the two giants of labor merge into the most powerful labor alliance in our history (see page 21).

On Saturdays for several weeks union members have hammered and painted for charity in 44 communities in and around Detroit. Through building bees, jointly sponsored by labor, suppliers and contractors, they've helped the construction industry to contribute nearly a half million dollars this year to the annual Torch Drive, the give-once-for-all campaign that supports 139 charitable agencies.

"Working together with employers or other groups toward a better community and a happier tomorrow is one of the goals of intelligent unionism," says L. M. (Boots) Wier, secretary-treasurer of the Detroit Carpenters District Council. "We feel," he adds, "that our members as workers

the campaign reach its goal.

Hammering for charity, union members donated all their Saturday wages to the drive.

and as citizens, should do their share in solving community problems and bearing community burdens."

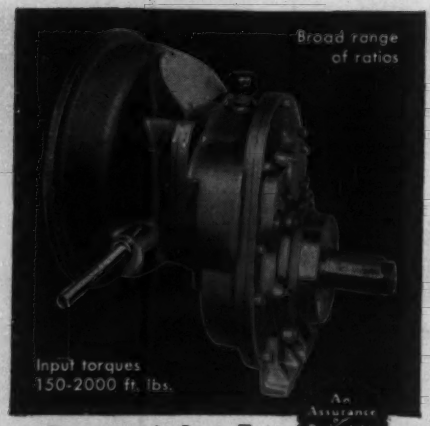
The Detroit scheme of mutual assistance and cooperation through which the building industry gave the Torch Drive the benefit of "skilled hands and generous hearts" was a simple one. Working on Saturdays at straight time with the full permission of union officials, members of the Carpenters and Painters District Councils donated their days' wages which were in turn matched dollar-for-dollar by their contractors.

Projects which felt the impact of the community effort ranged from an army depot to an apartment building. With hot lunches and refreshments thrown in, the building bees were like echoes from the old frontier days.

It was the first time that such a program had been attempted by members of the Builders Association of Metropolitan Detroit. And the success achieved promised to provide a spur for an expanded program next year.

But perhaps the greatest significance of the Detroit venture lies in its reflection of the new approach to la-

Eating time—with food provided by contractors—turned the work into a real bee.



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. . . Labor

bor's future, now unfolding at the historic AFL and CIO conventions under way this week in New York.

Emphasis on the old class struggle between capitalist and labor is about to be officially discarded. In its place will be proclaimed labor's dedication to "the interests of all the American people"—in the community and in the exercise of the rights of citizenship, as well as at the collective bargaining table. And the success—or failure—of the merger will largely depend upon how that challenge is met by the individuals across the nation who are about to be embraced in the new federation.

Court Denies Injunction In Big Teamsters' Strike

Last week the Federal District Court in Los Angeles refused to halt the teamsters' strike, underway since Oct. 3 against 29 members of the Southern California Rock Products Association. In denying the employers' request for an injunction, the court questioned its own right to step into a case involving a contract that has not yet been signed by the Feuding parties.

Millions of dollars worth of construction have been tied up for nearly two months while teamsters and rock producers have been in a stalemate over terms for a new contract. Stumbling block has been the union's demand that employers participate in the Western Conference of Teamsters Pension Fund (ENR, Nov. 3, p. 98).

Charges of unfair labor practices, filed by both groups, are now under investigation by the NLRB. Two other legal actions, now pending (ENR, Nov. 17, p. 16), last week moved along to this point:

- The federal judge who denied the injunction said the $5-million damage suit filed against the teamsters by the employers would go to trial but the date has not been set.
- The same judge will take under advisement the employers' contention that the teamsters' demand for contributions to the pension fund is illegal under provisions of the Taft-Hartley Act.

Meanwhile, negotiations have continued. Making their first counter proposal to the pension fund demand, the employers have offered a 15-cent boost in basic pay and a two-cent increase in fringe benefits plus, another 10 cents in lieu of a pension contribution, or a five-cent boost plus a group annuity pension plan, or their own pension plan with benefits equal to those of the Western Conference.

OFFICIAL PROPOSALS

Bids: December 6, 1955

The Hydro-Electric Power Commission of Ontario

ST. LAWRENCE POWER PROJECT
POWERHOUSE, PLASTIC WATERSTOPS

SEALED TENDERS, in quadruplicate, addressed to the undersigned, 620 University Avenue, Toronto 2, Ontario, and clearly marked

"TENDER FOR ST. LAWRENCE POWER PROJECT
POWERHOUSE, PLASTIC WATERSTOPS"

will be received up to 4.30 p.m., Eastern Standard Time, on

TUESDAY DECEMBER 6, 1955

for the supply, fabrication and delivery of approximately 45,500 linear feet of plastic polyvinyl chloride waterstops and accessories required for the Ontario Hydro powerhouse.

Delivery is required as follows: 10,500 feet by January 15, 1956, 15,000 feet by May 15, 1956, 10,000 feet by September 15, 1956, and 10,000 feet by March 15, 1957.

Copies of the tendering documents may be obtained on or after November 14, 1955, at the office of the Director of Supply, 620 University Avenue, Toronto 2, Ontario.

Tendering documents may be inspected at the above location and at the offices of the following: The Commission's Field Office, Cornwall, Ontario; Power Authority of the State of New York, 270 Broadway, New York 7, New York; and Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts.

The lowest or any tender will not necessarily be accepted.

E. B. EASSON,
Secretary.

U. S. Government

OFFICE OF THE ARCHITECT OF THE CAPITOL, UNITED STATES CAPITOL, WASHINGTON, D. C., November 23, 1955. Sealed Bids in triplicate will be received in this office until 3 o'clock P.M., E.S.T., December 29, 1955, and then publicly opened for furnishing the materials and performing the work for the reconstruction, repair, alteration, and improvement of the areas located above and in the vicinity of the Legislative Garage in the United States Capitol grounds, Washington, D. C. The proposed work involves demolition, waterproofing, insulating concrete, exposed-aggregate concrete paving, stone, plumbing, electrical, and related miscellaneous work. Drawings, specifications, and bidding information will be ready on or about December 2, 1955, and will be issued without deposit, in the discretion of the Architect of the Capitol, to qualified contractors proposing to submit bids for the entire work, not exceeding three sets to any prospective bidder. Applications for drawings, specifications, and bidding information should be filed at once. ARTHUR E. COOK, Acting Architect of The Capitol.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4571) will be received at Ephrata, Washington, until January 10, 1956, for furnishing labor and materials for earthwork and structures, PE 16.4 Wasteway, PE 46A Wasteway, and county Road Relocation, Block 19—Potholes East Canal Laterals, Columbia Basin Project, Washington. Location near Ringold, Washington. Principal items are 926,000 cu. yds. excavation; 1,700 cu. yds. gravel road surfacing; 1,700 cu. yds. riprap; 2,985 cu. yds. concrete in structures; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, P. O. Box 368, Ephrata, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: December 8, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., Eastern standard time on the 8th day of December, 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

Contract No.	County	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 4, B. F. Perry, Acting District Engineer, Barge Canal Terminal, Rochester 1, N. Y.						
FAC 55-17	Monroe	Rochester City: Inner Loop (South Ave. to George St.). (Contract #2). Project No. U-231(8)	0.48	Demolition and Misc. Work	$9,600 Plans $10	$174,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court St., Buffalo, N. Y.						
FGRC 55-89	Cattaraugus	Gowanda Village, S.H. 1024; Gowanda-Dayton, S.H. 958; Project No. FG-670(2)	0.20	Two Crse. Cem. Conc. Pavt.=0.19 Mi. Misc. Work=0.01 Mi. R.R. Sep. Pl. Gir. 140'	$28,000 Plans $15	505,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
FERC 55-95	Orange	Port Jervis-Sullivan County Line, Pt. 1, S. H. 412 Project No. ER-18(1)	1.65	9" Cem. Conc. Pavt. 24' Wide = 1.58 Mi. Misc. Work=0.07 Mi.	$40,000 Plans $15	744,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

New Bid Date

Bids: December 19, 1955

Township of Livingston New Jersey

ADVERTISEMENT

Sealed proposals for construction of Alterations and Additions to the Sewage Treatment Plant, will be received by the Township Committee of the Township of Livingston, Essex County, New Jersey at its office in the Fire House on South Livingston Avenue, Livingston, New Jersey, until 8:30 o'clock P.M. Eastern Standard Time, on December 19, 1955, after which time they will be publicly opened and read. No bids will be accepted after said hour. Proposals will be received on the following contracts:

Contract 5G—General Construction Work
Contract 5E—Electrical Work
Contract 5H—Heating and Ventilating Work
Contract 5P—Plumbing Work
Contract 5S—Structural and Ornamental Iron Work.

Bidders are notified that under Chapter 180 of the Laws of 1926, R.S. 40: 50-5, State of New Jersey, they will be required to furnish a standard form of questionnaire and financial statement containing a complete statement on the bidder's ability, financial standing and experience in performing work of the type contemplated before such bidder can be furnished plans and specifications. Questionnaire forms may be obtained at the office of the Township Engineer, 316 South Livingston Avenue, Livingston, New Jersey, Annex No. 1. The Township of Livingston, through its engineers, may refuse to furnish such bidder whose statement is unsatisfactory with plans and specifications.

Information for Bidders, Proposal forms, Specimen Contract, Plans, Specifications and other pertinent Contract Documents may be examined at the offices of Bowe, Albertson & Associates, Engineers, 75 West Street, New York City, New York, and at the office of the Township Engineer, 316 South Livingston Avenue, Livingston, New Jersey, Annex No. 1, between the hours of 10 A.M. and 4 P.M. daily except Saturdays, Sundays and holidays, and obtained at either office upon making a deposit of Twenty-five ($25.00) dollars, which will be refunded to bidders only who apply for a refund within 30 days after the date when proposals are opened and who return the plans and specifications in good condition.

Extra copies of specifications may be obtained at the cost of Ten ($10.00) dollars each and extra copies of plans may be obtained at the cost of Five ($5.00) dollars each, which sums will not be refunded. Extra sheets of plans may be obtained at the cost of One ($1.00) dollar each, which sum will not be refunded.

Each bid must be accompanied by a certified check made payable to the order of the Township of Livingston, New Jersey or a duly executed bid bond in the amount of 10% of the bid as a guarantee that in case a contract is awarded to the bidder, he will execute such contract and furnish a satisfactory Performance Bond. Acceptance of the bid will be contingent upon fulfillment of this requirement by the bidder and on failure to do so, he shall forfeit the deposit.

The Township Committee of the Township of Livingston reserves the right to reject any or all bids, to waive any informalities or to accept the bid or bids which in its judgment will be for the best interests of the Township of Livingston.

THE TOWNSHIP COMMITTEE
TOWNSHIP OF LIVINGSTON,
NEW JERSEY
By: Herbert J. Mitschele
Chairman

BOWE, ALBERTSON & ASSOCIATES
Engineers

Bids: December 15, 1955

New York State Road Works

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on December 15, 1955 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES OF BRUCKNER EXPRESSWAY, SECTION II, FROM BRONX RIVER TO NEW ENGLAND THRUWAY, BRONX COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-80.

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE CROSS-BRONX EXPRESSWAY, FROM CLAY AVENUE TO ARTHUR AVENUE, BRONX COUNTY. WHCH CONSTITUTES CONTRACT NO. SPEC. SM-81.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. M. E. Goul, District Engineer, 325 West Main Street, Babylon, Long Island, N. Y.

(c) Mr. William Trainor, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms for each contract is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for Spec. SM-80 is $44,820.00 and for Spec. SM-81 is $7,600.00.

Proposal for each contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposals must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,250.00 for SM-80 and the sum of $380.00 for SM-81. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
PUBLIC WORKS

Special Notice
Boeing Airplane Company

Phase II Preflight Facilities
Moses Lake Flight Center, Moses Lake, Washington

Dates for availability of bid documents and opening of bids as heretofore published are hereby withdrawn. New dates will be announced in this publication in the near future.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4573) will be received at Palisades, Idaho, until December 29, 1955, for furnishing labor and materials for Goshen Substation, Palisades Project, Idaho. Location 3½ miles east of Firth, Idaho. Principal items are 7,250 cu. yds. excavation; 18,600 pounds furnishing and placing reinforcement bars; 210 cu. yds. concrete; 65,000 pounds furnishing and erecting steel structures; 5,200 pounds furnishing and installing aluminum cable ternch covers; and other work. Completion time 285 days. For particulars, address Bureau of Reclamation, Palisades, Idaho; P. O. Box 937, Boise, Idaho; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: December 6, 1955

The Hydro-Electric Power Commission of Ontario

ST. LAWRENCE POWER PROJECT
ELEVATED STEEL WATER TANK
NEW TOWN NO. 1

SEALED TENDERS in Quadruplicate, addressed to the undersigned, 620 University Avenue, Toronto 2, Ontario, and clearly marked

"Tender for St. Lawrence Power Project, Elevated Steel Water Tank for New Town No. 1"

will be received up to 4.30 o'clock p.m., Eastern Standard Time, on

Tuesday, December 6, 1955

for the supply and erection of an elevated steel water tank of 208,000 imperial gallons capacity and 125 feet high for the new townsite of New Town No. 1, near Farran's Point, Ontario. The work is to be completed on or before August 1, 1956.

Copies of the tendering documents may be obtained on and after November 17, 1955, at the office of the Director of Supply, Ontario Hydro, 620 University Avenue, Toronto 2, Ontario, on payment of $10.00 for each set. This charge will not be refunded.

Tendering Documents may be inspected at the above location and at the offices of the following:

The Commission's Field Offices at Cornwall and Morrisburg, Ontario; Power Authority of the State of New York, 270 Broadway, New York 7, New York; and Uhl, Hall and Rich, 230 Congress Street, Boston 10, Massachusetts.

The successful tenderer will be required to furnish a performance bond in the form approved by the Commission, and issued by a bonding company licensed as such in the Province of Ontario and acceptable to the Commission, for one hundred percent (100%) of the total amount of its contract.

The lowest or any tender will not necessarily be accepted.

E. B. EASSON,
Secretary.

Bids: December 15, 1955

New Fairfax Bridge Project

ADVERTISEMENT FOR BIDS
NEW FAIRFAX BRIDGE OVER
MISSOURI RIVER
AND
APPROACH HIGHWAYS
NEAR
KANSAS CITY, KANSAS

Sealed proposals will be received at the office of the Clerk of the County Court of Platte County, Platte County Court House, Platte City, Missouri, until 2:00 P. M. Central Standard Time, on the 15th day of December, 1955, for furnishing the materials and constructing complete the New Fairfax Bridge Project. The project includes a 2600' vehicular bridge over the Missouri River adjacent to the present Fairfax Bridge between Platte County, Missouri and Wyandotte County, (Near Kansas City), Kansas; a 4900' North Approach Highway built above the elevation of high water from the proposed bridge to Missouri State Route 45 and including a 225' highway bridge over the CB&QRR tracks; and a 1200' South Approach Highway, including 110' extension of the south end of the present bridge and a 2300' by-pass road under the south ends of the bridges.

The project will provide two additional traffic lanes for U. S. Routes 69 & 169 from Seventh Street and Kindelberger Road in Wyandotte County, near Kansas City, Kansas to Missouri Route 45 in Platte County, Missouri. Platte County plans to finance the construction from the proceeds of the sale of revenue bonds and, pursuant to the terms of an agreement executed with the Missouri State Highway Commission and the State Highway Commission of Kansas, has the authority to construct the project.

Contracts for the following portions of the project will be let to one or more bidders separately or in combinations:

CONTRACT I —SUBSTRUCTURE — NEW FAIRFAX BRIDGE

CONTRACT II — SUPERSTRUCTURE —NEW FAIRFAX BRIDGE

OFFICIAL PROPOSALS

CONTRACT III—NORTH APPROACH HIGHWAY

CONTRACT IV —SOUTH APPROACH HIGHWAY

The substructure of the river bridge will consist of four main piers of reinforced concrete carried to a rock foundation and seven south approach and five north approach span piers of reinforced concrete supported by timber piling. About 15,242 cubic yards of concrete will be required for the substructure.

The superstructure of the bridge will have a concrete roadway of 26' clear width. The roadway will be supported over the principal openings by cantilever thru trusses spanning three openings of 417,475 and 417 feet each flanked on each side by a thru truss spanning 300' openings. The south structural approach will consist of deck griders spanning six openings, three at 80', two at 60' and one at 40'. The north structural approach will consist of deck girders spanning four openings, three at 80' and one at 40'. About 2900 tons of structural steel and 1670 cubic yards of concrete will be required for the superstructure.

The north approach highway will require about 230,000 cubic yards of embankment, 15,000 square yards of P.C.C. pavement, 575 cubic yards of structure concrete and 89 tons of structural steel.

The south approach highway will require about 51,720 cubic yards of embankment, 15,400 square yards of P.C.C. pavement, 134 cubic yards of structure concrete and 38 tons of structural steel.

Proposals shall be submitted in sealed envelopes clearly marked on the outside to indicate the contents as a bid for one, several or all of the subject jobs and the name of the bidder, and addressed to the Clerk of the County Court, Platte County Missouri, Platte County Court House, Platte City Missouri. When sent by mail, the sealed proposal must be placed in another envelope and addressed as indicated above.

Copies of the plans, proposals and general and special provisions of the specifications are on file at the office of the Clerk of the County Court, Platte County, Missouri, Platte City, Missouri and at the office of Sverdrup & Parcel, Inc., 1118 Syndicate Trust Building, St. Louis, Missouri. These plans, proposals, general and special provisions of the specifications may be obtained by prospective bidders from Sverdrup & Parcel, Inc. upon payment of the amounts as follows:

CONTRACT I	—$10.00 per set
CONTRACT II	— 15.00 per set
CONTRACT III	— 20.00 per set
CONTRACT IV	— 25.00 per set

No refunds or credit will be made for material returned.

All bids must be submitted on the proposal blanks furnished and must be accompanied by a certified check or bid bond, payable to Platte County, Missouri, for not less than five percent (5%) of the amount of the bid.

The right is reserved to reject any or all bids and to waive informalities.

COUNTY COURT OF PLATTE COUNTY, MISSOURI

Wm. Anderson, Presiding Judge

Attest:

Holman T. Ham, County Clerk

November 17, 1955

U. S. Government

Department of Commerce, Bureau of Public Roads, November 17, 1955. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., DECEMBER 16, 1955, for Project 19A1, Colonial National Historical Park, James City County, Virginia. Grading, draining, bituminous surface treated base course, five timber bridges on timber piles and other work, from the Colonial Parkway Terminal on Jamestown Island to Black Point and return. Length: 4.953 miles. The approximate quantities of the more important items are: 281 Stations of 100 linear feet each, of Station Grading, 28,100 cu. yd. Excavation and Borrow, 190 M ft. b.m. Treated Timber and 13,000 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above or Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Spelman, Division Engineer.

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities — executive, management, technical, selling, office, skilled, manual, etc.

RATES

DISPLAYED

The advertising rate is $24.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request. Effective Jan., 1956 the rate will be $28.25 per inch. **An advertising inch** is measured ⅞" vertically on a column — 3 columns — 30 inches to a page. Subject to Agency Commission.

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$1.80 per line, minimum 3 lines. To figure advance payment count 5 average words as a line. Effective Jan., 1956 the rate will be $2.10 per line.

Box Numbers—counts as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Engineers experienced in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience, references and salary requirements. Location Ohio. P-8294, Engineering News-Record.

Instrument Men—West Indies surveys, plot layout, some development planning send resume, recent photo and salary requirements. P-8209, Engineering News-Record.

Wanted: Bridge & Highway designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-8381, Engineering News-Record.

Registered Architect, for association in Alaska. Potential $12000 plus send resume airmail to Philleo Engineering Service, Box 464, Fairbanks, Alaska.

Assistant City Engineer for general municipal work. Send personal data. Salary range $4450-$4930 plus benefits. City Engineer, Watertown, New York.

Structural concrete superintendent for a general contractor doing work in New York State. Must have experience in reinforced concrete grade separation work and following in the trades. State experience and salary desired. Reply to P-8305, Engineering News-Record.

Architectural draftsman for school and church buildings. Must be capable of doing structural steel designs. Need experienced man qualified to take responsibility. Write P. O. Box 278, Lancaster, Ohio, giving qualifications, experience and salary or phone Lancaster 2243-W for appointment.

Wanted: Tunnel superintendent and shifters experienced in both heavy earth and rock tunnels. Location: Colorado and Pennsylvania. State age, experience and salary desired. P-8341, Engineering News-Record.

Electrical contractor, construction, foreign air base project—lines, buildings and utilities. P-8347, Engineering News-Record.

City Engineer, graduate civil engineer to serve as administrator of public works and building dept. in village of approx. 8,500. Must be capable of preparing engineering surveys and studies for public improvements. Ill. registration or eligibility required. Salary $6000 to $7000. Please send detailed resume to President, Board of Trustees, Libertyville, Ill.

Highway Designers, Bridge Designers, draftsmen. Permanent positions available. Location Southern Connecticut. Send complete experience record, references and salary desided. P-8438, Engineering News-Record.

Engineer—5-10 years experience in engineering construction and process design. Must be capable of directing all phases of engineering design and construction work in connection with ore dressing and chemical processing plants. Southwest USA. Salary open. P-8482, Engineering News-Record.

(Continued on page 88)

CHEMICAL—ELECTRICAL—MECHANICAL ENGINEERS

Immediate Openings

In development and technical Divisions, for graduates with minimum of 5 years experience. Steel and chemical plants and steel plant auxiliaries.

Send resume to C B Whitcomb

TECHNICAL DEVELOPMENTS ASSOCIATES, INC.
3113 Prospect, Cleveland, Ohio
UT-6612

HIGHWAY ENGINEERS

Junior positions in California's huge highway program. High level professional experience with excellent promotional opportunities offered to recent college graduates in civil engineering. $395 to start with raise after 6 months. Positions open at this level only. Write for illustrated booklet, Section E, State Personnel Board, 801 Capitol Avenue, Sacramento 14, California.

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OVERSEAS AIRBASE
Mild Climate!

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ASPHALT PLANT INSPECTOR

LABORATORY TECHNICIAN

SOILS ENGINEER

Send full resume—confidential—including salary desired—to:

P-8374—Engineering News-Record
330 W. 42 St., New York 36, N. Y.

INDUSTRIAL ENGINEERS

College graduates with minimum 6 years' work experience in industrial engineering, cost analysis or related activities. To provide industrial engineering services ranging in scope from shop layout to organizational changes in major oil producing operations.

Write, giving full particulars regarding personal history and work experience. Please include your telephone number.

Recruiting Supervisor, Box 93

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, N. Y.

ENGINEERS and DRAFTSMEN

Growing company expanding engineering division. Opportunities for rapid advancement into management and development work on TV broadcast antenna towers, industrial buildings, aircraft hangars, mechanical parking garages. Liberal benefits, including retirement. Moving expenses paid.

Write
E. L. Smith
DRESSER-IDECO COMPANY
One of the Dresser Industries
875 Michigan Ave.,
Columbus, Ohio

SQUAD BOSS FOR DRAWING ROOM

Must have experience in bridge stresses, and be able to handle all engineering problems for Drawing Room consisting of approximately eleven Detailers and Checkers. Address all replies to D. H. Bradley,

The Mount Vernon Bridge Co., Mt. Vernon, Ohio

ESTIMATORS

Experienced in Process Equipment and piping costs, for Chemical Plant & refinery construction. Position offers good future with progressive Penna. firm. Send resume to

T-95, P. O. BOX 3495
Philadelphia 22, Pa.

DESIGN ENGINEERS

Immediate Openings
OVERSEAS
On Defense Projects

12 month optional contract
SINGLE STATUS ONLY
Good pay & Accommodations.

Must have degree or equivalent plus 6-10 years experience.

P-8255, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

EXPERIENCED HYDRAULICS ENGINEER WANTED

Graduate engineer experienced in paper mill hydraulics, planning and development of piping layout systems, etc. for large expanding and progressive mill in Maryland. Good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

ENGINEERING OPPORTUNITIES

For your graduate Civil Engineers interested in future as highway design engineers. Training under competent highway specialists in expanding well-established firm.

Permanent positions now available. Some highway experience preferred but not required.

Excellent starting salaries, moving allowance, Blue Cross, paid vacations and holidays; sick leave, and voluntary employee benefit and retirement plan.

Write for application form.

SVERDRUP & PARCEL ENGINEERING CO.
1134 Locust St. St. Louis 1, Mo.

SALES ENGINEERS

Explosives manufacturer with nationwide distribution has attractive openings for men with technical background or practical experience as sales engineers; age, under 30 preferred. Starting salary commensurate with experience. Considerable traveling is required. Liberal benefits. Every incentive for advancement.

This is an excellent opportunity for the application of your knowledge of mining, quarrying, construction, and related industries.

Send complete resume. Photograph optional. All correspondence will be held in strict confidence, and references will not be contacted without permission of applicant.

P-8405, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

CIVIL ENGINEERS
(Structural)

Degree and responsible experience of at least three years in structural steel, and reinforced concrete on bridges, building, or heavy structures.

Send complete resume and salary requirements to

P-8406, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

ENGINEER WANTED

Engineer and Maintenance Supervisor for Kalamazoo Public School System. Should have degree in civil, architectural or structural engineering and some experience in an architectural firm or in construction work. Apply to C. C. CRAWFORD, Secretary-Business Manager, Kalamazoo Public Schools, 386 E. Lovell Street, Kalamazoo, Michigan.

MECHANICAL ENGINEER

Graduate Mechanical Engineer experienced in the operation of Fourdrinier paper machines, refining and related equipment for large expanding and progressive mill in Middle Atlantic States. Under 35 years of age. Good salary and excellent opportunity for advancement. Give detailed resume of experience. Send resume to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

CONSTRUCTION EQUIPMENT ENGINEERS

Graduate engineers with minimum 5 years' experience designing, selecting, specifying and/or supervising operations of construction equipment, such as crawlers, rubber-tired tractors, shovels, cranes, air compressors, welding machines, pumps, mixers, spreaders, fork lifts, etc.

To consult with manufacturers and suppliers on selection and modification of the above-mentioned equipment. For company's Equipment Engineering Division located in New York City. Salary good; liberal benefits.

Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 89

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, NEW YORK

ENGINEERS

STRUCTURAL
HIGHWAY
ELECTRICAL

for work on

Bridges, Expressways, Turnpikes

PERMANENT POSITIONS DEPENDING ON EXPERIENCE AND ABILITY

PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE

INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

Howard, Needles, Tammen & Bergendoff
55 Liberty St. New York 5, N. Y.

DESIGN ENGINEERS
FOR
HIGHWAYS AND BRIDGES

WATER AND SEWAGE TREATMENT
ALSO
DETAILERS AND DRAFTSMEN

Permanent positions with unique benefits for sincere ambitious men—submit educational background, experience record, salary requirements and availability.

GLACE & GLACE, INC.
Consulting Engineers
1001 North Front Street Harrisburg, Penn.

INSTRUMENT MAN WANTED

Preferably civil engineering graduate with several years field experience by large heavy construction contractor. Permanent position, location Maryland. Excellent opportunity for ambitious man as several of our executives have started with us in similar positions. Please state age, education, short experience outline, and salary wanted.

P-8365, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

Fire Protection ENGINEERING

An expanding field with a top-flight organization.

RECENT GRADUATES

Wanted to train as fieldmen. Send personal resume to:

P-8418, Engineering News-Record
330 W. 42nd Street, New York 36, N. Y.

SALARIED POSITIONS $5,000 — $35,000

We offer the original personal employment service (established 45 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc.
659 Brisbane Bldg. Buffalo 3, N. Y.

TOWN ENGINEER

WANTED:—Civil Engineer for the position of Town Engineer in the Town of Hamden, Connecticut. Must have had a minimum of five years of progressively responsible experience in engineering work, including experience in municipal affairs. Applicant must have professional engineering and land surveyor's licenses issued by the State of Connecticut or be eligible for said licenses in the State of Connecticut.

For details and application write to the Board of Selectmen, Town of Hamden, Connecticut. Applications will be accepted from any eligible person in the United States.

HEATING & VENTILATING ENGINEER

Graduate Engineer experienced in all phases of paper mill heating and ventilating air conditioning and refrigeration for large expanding and progressive mill in Maryland. Under 35 years of age, good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

POSITIONS VACANT

Industrial builders require exec. gen'l. supt. job supt., mech. estimators, exec. secy. State salary, details. P-8457, Engineering News-Record.

Engineer-Estimator for building construction work in Utah. An engineer for building construction work qualified to estimate and layout all phases of building construction. Please give training, experience and references. P-8465, Engineering News-Record.

Graduate Civil Engineer excellent opportunities with nationally recognized organization engaged in engineering service work in highway and concrete fields. Location Kentucky and adjacent states. Permanent position. Salary based on qualifications and experience. Car allowance and expenses. Excellent benefits and retirement program. P-8490, Engineering News-Record.

Civil Engineer. Exceptional opportunity for man with degree in civil engineering and approximately 10 years experience in structural design and construction. Must be able to supervise all building alterations and new construction developing from expansion program of stable, energetic manufacturing concern. Ability to carry work from design stage to completion of project essential. Favorable North Jersey location, with excellent employee benefits. Write full particulars, including salary requirements, to P-8496, Engineering News-Record.

Engineer for municipal work including experience in highway construction and repair, sanitary sewer maintenance and construction and general municipal engineering. Must be Registered Engineer in Pennsylvania. Kindly state education, experience, qualifications and desired salary. M. L. Blackburn, Chairman Highway Committee, Township of Haverford 201 West Chester Pike Havertown, Pa.

POSITIONS VACANT

Office Manager, for American construction company in Ecuador. General business administration, personnel matters, general and cost accounting, material and equipment control. Latin American experience and Spanish language ability desirable. Airmail full details of experience, personal data, referencs, and salary rquirements to Apartado 4665, Guayaquill, Ecuador.

Bridge Designers — Civil Engineering graduates of accredited U. S. Schools; at least 4 years experience required on design structural steel and reinforced concrete railroad and highway bridges. Send complete details, education, experience, salary requirements first letter. All applications acknowledged; qualified men will be interviewed. P-8501, Engineering News-Record.

EMPLOYMENT SERVICE

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, P. O. Box 674, Manchester, Vermont.

POSITIONS WANTED

Construction Sup't. over 20 years experience, industrial and high class finished projects. Engineer. Anywhere. Salary $200. PW-8252, Engineering News-Record.

Construction Supervisor — Civil Engineer BSCE 5 years experience in soils, asphalt and concrete. Airfields, rails and highways. Desire foreign work. Go anywhere. Resume on request. Available 15 December. PW-8251, Engineering News-Record.

Construction Field Engineer, B.S.C.E. Degree, age 32, last 3 years field experience in heavy construction. Other experiences include office procedure, drafting, and surveying. Prefer Northeast. Resume on request. PW-8430, Engineering News-Record.

Industrial Construction Manager. Civil Engr., exper. multi-project supervision. Job-planning & cost-control specialist. 6430 Lemon Ave., Long Beach 5, Calif.

Supt. Heavy Const. blasting, open cuts, shafts, tunnel quarry, coral rock. Earth moving and concrete. PW-8380, Engineering News-Record.

Highway and traffic engineer desires connection with firm doing turnpike work. Prefer a Midwest location. PW-8375, Engineering News-Record.

Civil Engineer B.S. Degree age 27 seeks overseas position 3 years experience in highway, bridge construction, hydraulics and dredging. Working at present with a large construction company in Venezuela. Speak and write Spanish and English fluently. Available immediately. PW-8479, Engineering News-Record.

Civil Engineer, 26, BSCE, completing 3 yrs. commissioned service, USN Civil Engr. Corps, 3 yrs. experience in plant maintenance and administration, 1½ yrs. in aircraft experimental project. Available 30 March. West preferred. PW-8436, Engineering News-Record.

Attorney-Engineer desires position with construction company as general counsel, BS Civil (Construction) Eng. with 3 yrs exp. as engineer, LLB with 3 yrs. exp. as chief contract and trial attorney with Corps of Engineers experienced all phases Govt. contracts & labor relations. PW-8437, Engineering News-Record.

Construction Engr — 19 years heavy and industrial constr. experience (field constr engr for large corporation, office manager for contractor, Army Engrs WW II, and other field experience). Serious, reliable, cost-conscious, excellent at project administration, good at reports, & know accountancy. Desire perm position with corporation, consultant or large construction company. Will move, will travel, available after Jan. 1st. PW-8458, Engineering News-Record.

Construction Superintendent; Over 25 years experience on hospitals, commercial & industrial bldgs., schools, housing projects, churches, etc. desires position of similar responsibility with reliable organization. Resident of New Jersey. PW-8467, Engineering News-Record.

Equipment Engineer, 25 years diversified experience in all phases heavy construction. Willing to travel, Domestic-Foreign. PW-8469, Engineering News-Record.

PART TIME WORK WANTED

Two exper. grad. civil engrs. Desire quantity & est. jobs near Metr. N. Y. PTWW-8500, Engineering News-Record.

DESIGN ENGINEERS

PERMANENT OPPORTUNITIES with McKEE

IN OUR REFINERY, METALS OR INDUSTRIAL DIVISIONS AT OUR CLEVELAND, OHIO OFFICES

McKee with more than 50 years of successful operation, doing business all over the world; is one of the largest, oldest and best known engineering and contracting firms in the business. The McKee organization continues to grow and expand, thereby offers many present and future opportunities for qualified and experienced engineers and designers in the following fields:

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STRUCTURAL STEEL
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Applicants should have at least five years' of experience.

Here is a rare opportunity for you to utilize your engineering abilities and talents.

McKee offers top compensation commensurate with experience and ability. No age limitations.

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Please Send Resume to:

Edward A. Kolner
ARTHUR G. McKEE & CO.
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Experience or background desirable in power transmission, electronic controls, motors, and generators. Position includes design and layout work, preparation of project specifications and field coordination.

This permanent position offers excellent future with Virginia's newest Fiber Plant located off Route 10, one mile north of Hopewell.

NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORP.
CHESTERFIELD PLANT

HIGHWAY ENGINEERS

OVERSEAS AND DOMESTIC

Applications now being accepted for a limited number of additional openings.

Foreign project located near Bangkok, Thailand requires qualified field engineers and location surveyors with extensive highway experience as construction inspectors, party chiefs or instrumentmen; ages 28 to 45, degree or college background. Bachelor status only; excellent salaries and allowances; free food and lodging.

Openings for draftsmen and junior design engineers in our St. Louis office require young men, preferably with degrees, with one or two years experience. Positions available now offer excellent opportunities for the future.

Field men with highway location experience are invited to inquire regarding openings on survey parties for midwest projects.

Top salaries commensurate with education and experience, plus employee benefit and retirement plan, paid vacations; sick leave and paid holidays. Write for application form.

SVERDRUP & PARCEL ENGINEERING COMPANY
1134 Locust Street St. Louis 1, Mo.

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(TOPOGRAPHIC)

Challenging opportunities for Party Chiefs and Instrumentmen experienced in map survey control. Experience with aerial photographs and theodolites desirable. Permanent positions; considerable travel necessary. Forward detailed resume and salary desired.

AERO SERVICE CORPORATION
Photogrammetric Engineers
210 E. Courtland St. Phila. 20, Pa.

WANTED
STEEL SHEET PILING SALES REPRESENTATIVE

for following territories. 1. Ohio, 2. Michigan, 3. Virginia, 4. North Carolina, 5. South Carolina, 6. Alabama, 7. Tenn., 8. Kentucky.

P-8304, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SANITARY ENGINEER
Opportunity available for Sanitary Engineer in an expanding pulp and paper mill located in the Middle Atlantic States. Age 25-35 years. Require man experienced in paper mill wastes, paper mill stream pollution and paper mill water purification. No other experience will be given consideration. Good salary and advancement. All replies confidential. Send resume of educational background and industrial experience to Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

STRUCTURAL and MECHANICAL DESIGNERS

Having experience with heavy material handling equipment

Permanent Position For Qualified Men

HOSPITALIZATION
INSURANCE
VACATION

Phone or Write
Chief Engineer for interview

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Cleveland 4, Ohio
Telephone EN 1-0842

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Designers
Draftsmen
Office Engineers
Maintenance Engineers
Project Engineers
Location Engineers
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Domestic and Overseas Assignments
Knowledge of Foreign language necessary in some classifications.

Write, giving full particulars concerning education, experience, personal history and availability to:

Richard L. Shaw
Personnel Director

Michael Baker, Jr., Inc.
Consulting Engineers
Baker Building Rochester, Penna.

SEARCHLIGHT SECTION

(Classified Advertising)

BUSINESS OPPORTUNITIES — EQUIPMENT - USED or RESALE

UNDISPLAYED —RATES— DISPLAYED

$1.80 a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
PROPOSALS, $1.80 a line an insertion.
BOX NUMBERS count as one line additional in undisplayed ads.
DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page.
EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

Send NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd St., N. Y. 36, N. Y. for December 15th issue closing December 5th

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HYDRAULIC TURBINE SERVICE

Cavitated and Damaged Runners Repaired

Cast Iron, Cast Steel, Bronze and Stainless: Emergency Services:
Inspection and Supervision Services: 30 years' experience

- Use of Stainless Steel for cavitation repairs for long life
- Work performed in place on runners where damaged areas are accessible
- Wicket gate stems and contact edges built up and machined
- Turbine Shafts straightened

SERVICE ANYWHERE
Write for Bulletin No. 501

Welding Engineers, Inc.
Norristown, Pa. *Phone:* 8-6900

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TRANSITS AND LEVELS

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Headquarters for REPAIRS — any make — Factory Service. We will also *buy* your old instruments or take them in *trade*.

A complete line of Engineering instruments and equipment for field or office. Write for Catalog NRL 512.

WARREN-KNIGHT CO.
Manufacturers of Sterling Transits and Levels
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Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.

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P.O. Box 921 Lake Worth, Florida

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ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year

WILSON *Engineering Corp.*
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Fully equipped modern shop—all makes and models repaired—all work guaranteed — instruments rented

Midwest Representative: W. & L. E. Gurley

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Established 1914.
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FOR RENT

2—80D Northwest Shovels
20—Euclids—Rear and Bottom Dumps
3—DW 21 Cat Scrapers
7—D-8 Cat Dozers

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4-1107

SPECIALIZED REBUILDING

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All makes and models expertly repaired in modern shop. All work guaranteed.

Distributors for Brunson Instruments

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Colby Model 200 Whirley Crane

Rated 45 Tons @ 30' R, 110' Boom
Electric, 3/60/440 current.
65' Self-Prop. Tower, 32' Track Gauge.
Used very little, excellent condition.

Construction & Power Machinery, Inc.
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ALL MAKES INSTRUMENT REPAIRED

Experienced specialists and proper equipment guarantee fast work and dependable results at minimum cost.

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Rebuilt-A1 Condition

48B Bucyrus Erie Shovel 2 cy diesel
Northwest Model 6 Shovel, 1½ c.y.
Caterpillar Auto Patrol No. 12
Caterpillar D8 Bulldozer
Caterpillar Scraper Model 80
3-Caterpillar DW 10's

WILLIAMS CONSTRUCTION COMPANY
Box 143 Balto. 20, Md. Murdock 6-6600

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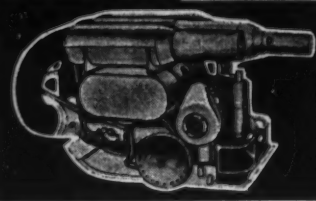

100,000 BTU PORTABLE
HEATER and DRYER

SALE PRICE $95.00

Stewart Warner portable, powerful 100,000 BTU gasoline-burning Heaters, with Turbine type blowers; 1½ hp air-cooled, ball bearing engine; 3' ducts (45-ft. total) IMMEDIATE DELIVERY.

Excellent Operating Condition Guaranteed

HEATING buildings, shops, sheds, barns, warehouses, tunnels, bldgs under construction, spot-heating, etc.

DRYING plaster, paint, grains, mortar, concrete. Torrid blasts of heat.

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- VAST QUANTITY OF REPLACEMENT PARTS
- Also SERVICE MANUAL & PARTS CATALOG

PHONE COLLECT—your Heater can be shipped within 2 hours, or, SEND FOR LITERATURE.

BERNSTEIN BROS. MACHINERY CORPORATION
Phone 8404 • "Since 1890" • PUEBLO, COLO.

WANTED

Michigan one yard tractor shovel
equipped with power shift transmission.

NEWTOWN IRON & STEEL CORP.
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AXtel 7-9000

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BELT CONVEYORS

30" or 36" complete. Need approx. 1400 feet or 7 conveyors approx. 200' each.
Write, wire or phone.

G. & W. H. CORSON, INC.,
Plymouth Meeting, Pa.

WANTED TO BUY

One used #200 Vulcan Pile Extractor in good condition

CUNNINGHAM BROTHERS, INC.
Beloit, Wisconsin

WANTED TO BUY USED CORE DRILL

Skid mounted, 2" holes to 300'—
Gas driven.

PHILIP J. HUGHES
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Editorials

False Economy in Low Salaries

PAY INCREASES HAVE BEEN WORKED OUT for some 1,800 "engineering" employees in the highway department of a state that need not be named, for it might be considered typical. The increases ranged from $10 to $25 in the lower salary range, bringing minimum pay for these employees from $120 to $150 per month. In the upper brackets, where the salary limit is $750 per month, the salary raises ranged to $50 per month.

Just guessing what the average pay raise might have been and multiplying it by the number of employees gives perhaps $500,000 as the total annual cost of these increases to the state. Put another way, it may have cost the state less than one mile of four-lane concrete highway over the next year.

There's hardly enough money for highways in any state; nor are there satisfactory salaries for highway engineers in many. The nation needs roads, but it won't get them without highway engineers. There's false economy in the low salaries paid this group, and any pay increase is commendable. Yet there is faint praise for the case in question when it is related to today's cost of roads—not to mention the total cost of solving the whole big highway problem.

Business or Profession?

IS ENGINEERING WORK as done by most consulting engineering firms a business or a profession? That question has been raised in an appeal to the U. S. Supreme Court by Kenneth R. Brown, head of the Brown Engineering Co. of Des Moines, Iowa, in which the National Society of Professional Engineers has joined as a "friend of the court" (ENR Oct. 6, p. 106).

This appeal asks the Supreme Court to set aside a decision of the Court of Appeals for the Eighth Circuit, which ruled that on certain of the work of the Brown Engineering Co. the company's employees were engaged "in commerce". Thus, said the court, they came within the seope of the Fair Labor Standards Act, making it necessary for the company to pay them time and one-half for overtime in excess of 40 hours on that particular work.

Numerous engineering activities were cited in the case reviewed by the Court of Appeals, including work on plants supplying power for interstate use, the preparation of plans and specifications for the repair of streets carrying interstate commerce, supervision of the work by a resident engineer, and inspection of materials. A lower court had concluded that such activities did not bring the company within the scope of the wage-hour act, but the higher court reversed that finding.

Obviously, if the Supreme Court does rule on the broad question of whether such work is professional, not a business activity, and so is exempt from provisions of the Fair Labor Standards Act, its decision will be a momentous one for the engineering profession. However, the court may decide not to hear the appeal, or it may follow the reasoning of the Court of Appeals when it said: "Questions of coverage under the Fair Labor Standards Act are determined on the basis of the employee's activities and not by the nature of the employer's business." If the Supreme Court takes the latter approach, it will rule only on the question of whether the activities of Brown's employees on the work at issue affected interstate commerce, and so were subject to the wage-hour act.

That the Supreme Court will take this approach, if it considers the case at all, seems probable. The court seldom goes beyond the issues on which the lower courts acted. Also, as this finding of the Eighth Circuit Court of Appeals goes contrary to a finding of the Fourth Circuit Court several years ago in a somewhat similar case, it appears probable that the Supreme Court will confine its finding to settling that controversy.

Such a finding would not dispose of the basic issue on which the National Society of Professional Engineers hopes to obtain an answer, but it would settle a very practical question that has troubled consulting engineers for a long time—whether their employees do or do not come under the wage-hour law.

Faulty Drafting Practice?

ATTENTION HAS BEEN CALLED in ENR in recent years to some defective reinforced concrete structures in the hope that information could be developed from them to prevent similar troubles in the future. However, in many cases, investigators either could not ascertain the causes of the defects or would not disclose them. Under the circumstances, those interested in learning a lesson from past mistakes can only guess at the probable causes.

It might be well to ask at this time how many of these unexplained failures may have been due to inadequate reinforcement traceable to present drafting practices. In 1946, the American Concrete Institute, in cooperation with the Concrete Reinforcing Steel Institute, issued a "Manual of Standard Practice for Detailing Reinforced Concrete Structures," in which reinforcing bars were indicated by solid lines of about the same weight as lines representing the outlines of the concrete structure. Prior to the issuance of the manual, it had been common practice to represent reinforcing by heavy, long dashes, which could easily be recognized. With the new system, drawings are difficult to read, since it is hard to differentiate between concrete and steel.

Justification for representing reinforcing by solid lines is the speed with which drawings can be made. But if this practice leads to confusion during construction and may be responsible for defective work, it should be changed.

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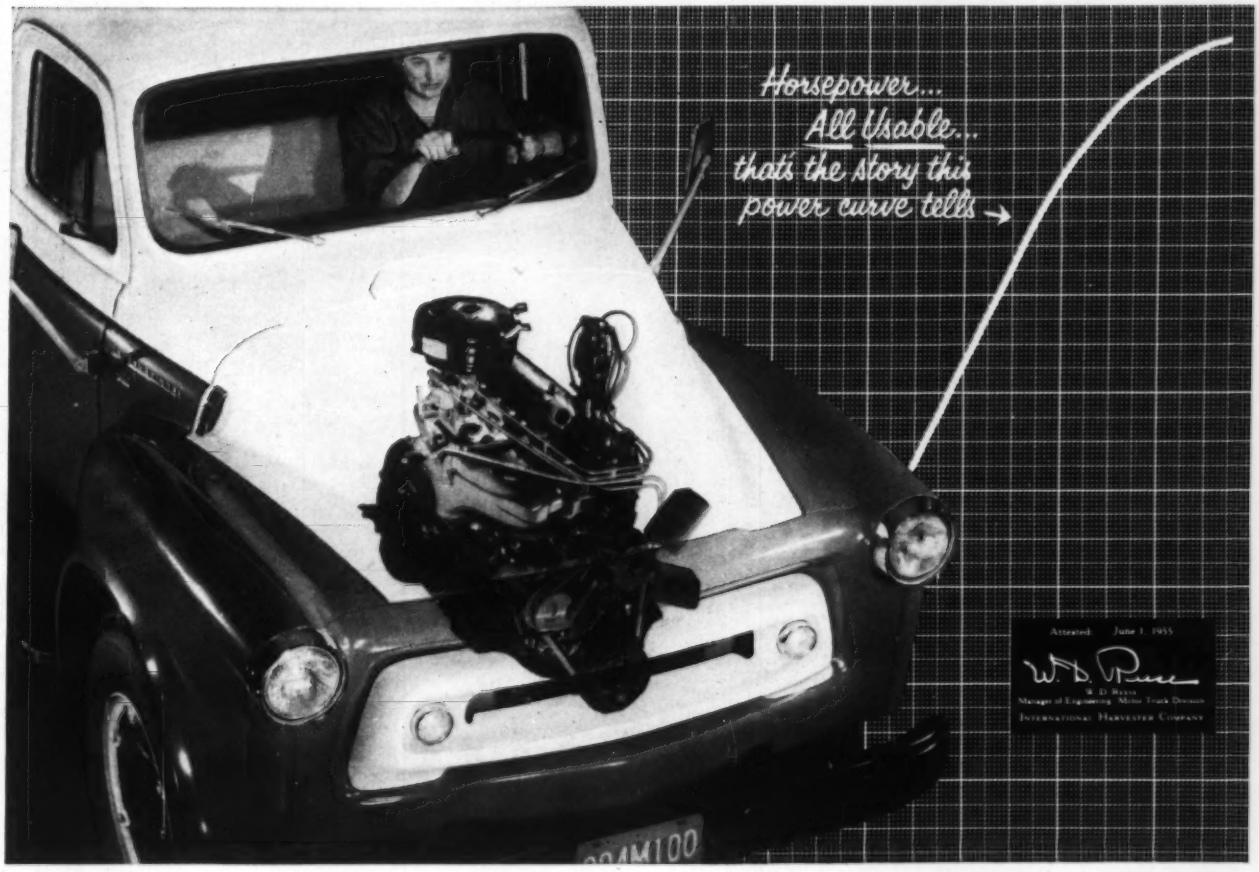

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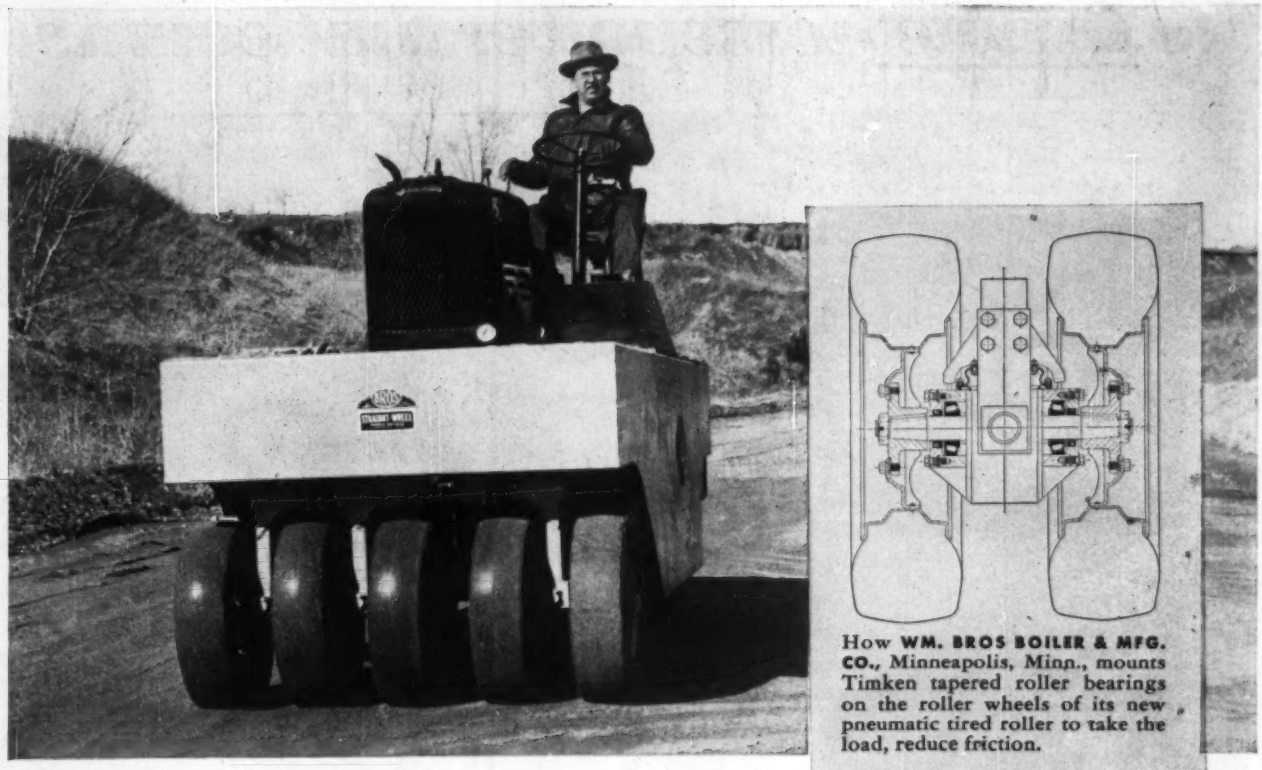

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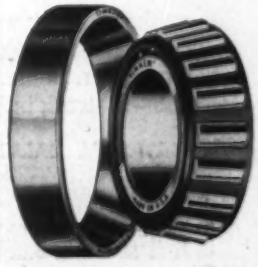

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